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THE movement for the organization of a "See America First Association," which was recently started at Chicago, has gained considerable headway and seems to have favorable prospects of success. The idea is by no means new, and the plans proposed simply apply the principles of co-operation on a broad scale to methods which have long been followed by the railways and others interested in the exploitation of America's points of interest. It would seem that, if rightly managed, a nation-wide campaign of education, conducted co-operatively by the transportation, commercial and hotel interests, and in accordance with well-defined policies, to arouse interest in the innumerable scenic attractions of this country among those who now spend millions of dollars annually in foreign travel, should accomplish much. As has been noted in our news columns, the plan had its origin at an informal dinner attended by railway passenger representatives in Chicago on May 27, and at a meeting of representatives of Chicago terminal lines on June 28 it was tentatively decided to go ahead with the plans outlined and form a permanent organization. A temporary board of managers was appointed, and at a meeting on July 9 it was decided to call a mass meeting to be held in Chicago in October at which the various interests and communities will be authoritatively represented by delegates to discuss the plan of a permanent organization in detail. It is proposed that membership shall consist of both rail and water carriers, chambers of commerce, boards of trade, civic organizations, hotels and hotel associations and others interested in serving the tourist public. In the meantime the temporary committee will hold conferences with representatives of the press, commercial interests and advertising men to learn the extent of the co-operation which may be expected. Many letters and personal assurances of support have been received by the members of the committee from railway passenger officers throughout the country and several organizations, including the Travelers' Protective Association and the Trans-Mississippi Commercial Congress, have shown marked interest.

IT has been estimated that approximately $400,000,000 is expended annually in Europe by American tourists, many of whom know comparatively little of the equally interesting attractions of their own country. It is believed that an active, permanent, co-operative organization may make it possible to carry on the advertising necessary to divert much of this business from foreign channels. The means by which the work of such an organization will be supported is, of course, a vital point to be considered, and the practicability of the plan will depend very largely on the success with which the danger from the natural jealousies and rivalries of sections and the competition of conflicting interests are avoided. The call for the meeting at which the preliminary organization was formed suggested a development of the community plan of advertising, by which civic organizations of various communities might be induced to appropriate certain sums to be added to the amounts now expended by the railways in advertising the scenery and other attractions of their territories, and the whole amount used to gain results which could not be achieved by less united and systematic methods. Under this plan all appropriations will be expended in the interests of the localities represented by the contributors, which should eliminate the possibility of arousing sectional jealousy. It has also been proposed to enlist the support of the federal, state and municipal governments. It may be found that the various railway and other interests are disposed to prefer to retain in their own hands control of their entire expenditures for the exploitation of their local or sectional attractions and resources as at present. But the co-operative plan, on its face, presents many interesting possibilities which are calculated to appeal alike to the patriotism of all Americans and the self-interest of many classes of business men.

ABOUT four months ago the president of the Burlington sent a letter to the governors of the states through which his line runs regarding the trespassers who are killed on railways. In the course of it he said, "If the average for the last ten years is holding good, fourteen people were killed yesterday while trespassing on the railways, whose deaths were wholly unnecessary and under proper laws might have been avoided; fourteen were killed today, and fourteen will be killed tomorrow. And yet, chiefly because these fourteen people who are killed daily meet their deaths in fourteen different places, almost no public notice is taken nor concern manifested." But, Mr. Miller said in this connection, "If a wreck should take place tomorrow in which fourteen people should die, the news of it would be widely printed over the country." It was the irony of fate that in so short a time a collision accident took

place on the Burlington itself in which thirteen people were killed, and that there ensued the very result Mr. Miller anticipated. The news about the wreck at Western Springs has been printed all over the country, and the accident is being investigated by the coroner of Cook county, the Illinois commission and the Interstate Commerce Commission. It has been the subject of column after column of newspaper comment, and it is thought that some important recommendations by the public authorities may result. The Western Springs accident is fully dealt with elsewhere in this issue. Meantime, it seems pertinent to inquire, what are the public authorities, who are so diligently inquiring into the sensational Burlington accident and preparing recommendations on the facts disclosed, doing along the same line to prevent the deaths of the fourteen trespassers who are killed each day on the average on our railways? Nothing. The trespassers continue to trespass, they continue to be killed, at the rate of 5,000 a year, and the public authorities and the public continue to do nothing about them and, apparently to care nothing about them. They find it much more agreeable to become excited and active about the fatalities for which they may hold the railways and their employees responsible than about those for which they themselves are responsible, although those for which they themselves are responsible are many times the more numerous. The *Railway Age Gazette* recognizes the heavy responsibility of railway directors and managers for accidents, but the attitude of the public and the public authorities toward them is enough to make a sane man who views the accident situation as a whole feel very, very tired.

SELLING RAILWAY SUPPLIES.

MOTIVE power officers are busy men, but as a general rule they are glad to find time to receive representatives of the supply interests in order to keep in touch with the developments and improvements which are being made in the various materials and devices which they handle. It has been suggested that in some instances, at least, greater care should be exercised by the supply companies in the selection of their representatives. In some cases the salesmen have only a superficial knowledge of the product which they are selling—not any more than could be gained by studying a catalog or reading a prospectus. It is little wonder that those having such limited knowledge are not welcomed with open arms after their first visit. They waste the time of the officers whom they interview and do not make a favorable impression for themselves. It is at once comical and pathetic to see some of them flounder around under the intelligent questioning of the man who is thoroughly familiar with the conditions under which the device or material will have to be used.

In contrast to this, consider the case of a man who was engaged in selling car replacers. He had had considerable railway experience, and before he started out on his new job visited several railways, getting in touch with the wrecking gangs and such of the operating and car department employees as might have to use the replacers. He made a study of the conditions under which they would have to be used and found out the weak points, as well as the good ones, of every replacer on the market. But he did not stop there. If he got to a town in which he expected to interview a railway officer, at 7 a. m. he would have breakfast and immediately get in touch with those among the employees or foremen who might have to handle the replacers. He would find what troubles they had with those they were using and the special conditions which might be met. At 10 or 11 o'clock, when he was shown into the office of the superintendent of motive power, he would probably know more about the actual results and conditions under which the replacers were used on the road than the man he was to interview. And he was more than ordinarily successful in getting the business.

A motive power officer, who is regarded by many supplymen as being a hard proposition to interview, recently, and on a very busy day, gave a young salesman whom he had never seen before two hours of his time. Why? Because the man knew his device so thoroughly—and it was a complicated one—that the motive power officer could not afford to cut him short and considered his time well spent.

The intelligent wide-awake supplyman has splendid opportunities for making himself valuable to, and getting closely in touch with the railway men he must depend on for business. The following incident illustrates this: A representative of a steel company was advised that it would not be worth his time to get business on a certain road. The company had been using another maker's steel for a long time with excellent results and there were good reasons why it should continue to do so. Nevertheless, the sales representative called regularly on the superintendent of motive power, making it a point, however, never to talk business, but without fail to leave some suggestion as to a scheme or device which he had seen in satisfactory operation in his travels, which might be applied with good results by the superintendent of motive power. In this way he gained his confidence and interest. Within three years he received a wire asking him to call immediately. He did so and was given a contract for all of a certain class of steel, and he retained the business until he entered another field several years later. It is not intended unreservedly to recommend this course of treatment, but rather to indicate the great advantage to a supply concern of having broad-gage, thoroughly-posted sales representatives on its staff.

THE LESSON OF THREE COLLISIONS.

THE collision at Western Springs, on the Burlington, on July 14, was the third bad one on the railways of the United States within two weeks. The three were alike in their main features, but they occurred under widely different conditions a combination of circumstances affording an unusual opportunity to study the causes of such disasters.

In the collision at Wilpen, Pa., on the Ligonier Valley, a passenger car was crushed between the engine which was pushing it and two engines which were pulling a freight train. The immediate cause was either the failure of the despatcher to deliver, or of the conductor to understand or obey, an order. The road on which the disaster occurred had no block signal system of any kind, kept no record of train orders, maintained no train register, had no printed rules governing train operation, and used a system of despatching which provided for verbal orders to be given to the conductor, and by him transmitted to the other members of the train crew.

At Western Springs three passenger trains in succession ran past a stop signal in a fog; and the third, a fast mail train, ran into the second, the flagman of which did not get back far enough "to insure full protection." The Burlington has ranked very high among the railways of this country for safe operation, good equipment, and the maintenance of a high standard of obedience among its employees. Officers of the railway say there had been no collision on its lines east of Burlington, operated under the manual block system, in 22 years. No fusees are used on the Burlington; and one point regarding its equipment which has not escaped attention is that there was no distant signal for the home signal at Western Springs. Distant signals are now being installed for all manual home signals, which seems to amount to an admission of their need.

Near Corning, N. Y., on the Delaware, Lackawanna & Western, the engineer of a regular train, in a dense fog, ran past in succession a distant automatic signal at caution, a flagman, and a home automatic disk signal at stop, and collided with a passenger train which had been stopped by a stalled freight ahead of it. The flagman had a fusee, but had neglected to take any torpedoes. This road, according to a statement of its general passenger agent, had carried 250,000,000 passengers in the twelve years preceding with a loss of only two lives. The

foregoing statements regarding the wreck indicate the high character of its equipment.

The fact of three collisions so similar occurring on three roads where the conditions as to physical equipment were so very dissimilar raises a strong logical presumption that some cause not connected with the physical equipment was operating in each case, and in fact was the essential cause—in other words, the cause without which probably not one of these collisions would have occurred, and without which possibly most collisions would not occur. Let us carefully examine and see if the preponderance of the evidence supports this presumption.

Nearly any circumstance surrounding a collision may be a contributing cause. At Wilpen the method of handling train orders, the placing of the car ahead of the engine, the conductor's loss of memory or carelessness in not being sure he knew what his orders meant, all contributed to the disaster. At Western Springs the fog, the misunderstanding of the signal operator, Mrs. Wilcox, as to whether No. 74 was to cross over at Congress Park, and her assumption that she had no reason to believe No. 8 would overrun the same signal that both No. 2 and No. 4 had just overrun, may be considered as contributing causes. So may the flagman's act in putting down, not one torpedo, but two, 10 ft. apart, the non-use of fusees on this road, and the absence of a distant signal which might have given a preliminary warning as to the indication of the home signal. And at Corning, the fog, the injector which seems to have distracted Engineman Schroeder's attention, the failure of the flagman to take any torpedoes with him, or to light his fusee soon enough, all may have helped to bring about the disaster.

The list of contributing causes in these accidents might be extended indefinitely. It could even be made, in the Burlington case, to include the practice of the United States government in awarding mail-carrying contracts to the road that makes the best time, thus putting a premium on fast running. Or it could include the failure of the flagman at Western Springs to obey the flagging rule, or of the enginemen at both that place and Corning to run cautiously in the fog.

The absence of any one of a number of such contributing causes might have prevented either of these collisions. For example, the flagman at Western Springs would have been out far enough at 1,100 or 1,200 ft., if the engineman on No. 8 had been running as cautiously as he should have been in the dense fog; and if the flagman had been out as far as he could possibly have gone he might have stopped No. 8. The same thing could be said of other incidents connected with the disaster. But none of these things, in the absence of which, perhaps, the wrecks would not have happened, was their real essential cause. These immediate causes each have a precedent cause, and it is that *cause of causes,* to which are traceable these collisions and most other collisions which must be hunted out and exterminated.

Such reports and recommendations as have been made in the past, following bad wrecks, and will probably be made in the cases under discussion, are well enough in their way. But they do not go far enough. They aim to correct only conditions which are nothing more than contributing causes. For example, to recommend that distant signals be installed for all home signals, that rule 99 specify a minimum distance which a flagman shall go back under certain conditions, that the Burlington displace its few women operators with men, that fusees be used to supplement torpedoes at night and in fogs, or even that enginemen never exceed a certain speed in a fog, will not prevent collisions under the many possible conditions under which these things would not and could not be contributing causes. Even an automatic stop would not remove the possibility of collisions, for it would be only as reliable as the signal to which it was attached or the track circuit control of that signal. And if a train should be far enough past the entrance to a block to avoid being hit by a following train stopping after an automatic device had acted, it could easily be far enough away to be hit pretty hard by that same train when it resumed its journey.

What, then, is this *cause of the causes* of accidents? Whatever else an investigation of one collision accident here and another there may disclose, there is one condition that every such investigation discloses, and that is the tendency of employees chronically and persistently to take risks, and the tendency of railway officers chronically and persistently to tolerate the taking of risks. In every investigation the fact comes out that the employees have taken risks. In every investigation the officers cite the book of rules to show that in doing so the employees violated the rules, and that the accident was a result of this. But why did they violate the rules in the particular instances when accidents occurred? The employees often reply that they did it to "make the time." But they are trying to "make the time" daily. Are they, therefore, violating the rules daily in order to do so? The evidence in about every case indicates that they are. The violations in the particular cases that result in accidents are, then, themselves, it would seem a result of a *habit;* and all the violations that have taken place have helped to form that habit; and, therefore, indirectly every violation of a rule or order that has ever taken place, whatever its immediate consequences, has ultimately helped to bring about disasters. But these chronic violations of rules that have formed the habit of taking risks—why have they occurred? There can be only one answer to that—they have occurred because adequate efforts have not been made to stop them. This is responsible for the impression which is very general among trainmen that "making time" is the first duty of man. It is responsible for the idea prevalent among employees that the rules actually governing the every day operations of a railway are not the same rules as those behind which the officers take refuge when there is a disaster. It is to blame for the daily disobedience of the rule which says that "in all cases of doubt and uncertainty the safe course must be taken and no risks run." Every employee whose misconduct, mistakes, or neglect has contributed to a collision has disobeyed that rule. The flagman of the Burlington's No. 2 was uncertain as to how far back he could get, but he didn't take the safe course and get back as far as he could. Three enginemen on that road were uncertain as to the position of the signal at Western Springs, but they did not take the safe course and run slowly until they could pick up its indication. And so on through the long list of employees whose acts have been immediate causes of wrecks. Corning, Wilpen, Kinmundy, Odessa, the Hoosac tunnel, and all the collisions before and since have added to that list.

Every time an employee fails to obey a rule he removes the certain protection of the safe course provided by that rule, creates a condition of uncertainty, and thus takes a risk. And the rule against taking risks is disobeyed oftener and enforced less than any other in the book. As to the reasons for this, the employee claims, as we have seen, that he is encouraged to take chances—told to obey the rules "but make the time," left to his own resources every day in situations about which he has never been instructed, and given to understand, in various subtle ways, by division officers, that nothing much will be said about any risks he may take which do not result in accidents.

The officers answer that a six-months' wrangle with the labor unions will follow an attempt to inflict a penalty for taking a risk that does not result in disaster. That is true, and because it is true it makes it very difficult for the conscientious operating officer to do his full duty and puts a very large responsibility for accidents on the labor brotherhoods.

But after all the primary responsibility must be assumed and borne by the railway manager. Rule 99 says a flagman shall go out "a sufficient distance to insure full protection." How many flagmen have been instructed as to how far that is (a) in a fog, (b) on a clear day, (c) on curves, (d) at night? How many flagmen have been asked within the last six months whether or not they know? How many are afraid to go back

as far as they ought to on account of having felt on previous occasions the lack of co-operation that has left them to walk five miles to town when there was no need for it? The flagman of the wrecked train at Corning told the coroner's jury that he was examined on the rules eight years ago, and that he had never been told how far to go back. How many trainmen have been censured for "making the time" in such bad weather that their superintendents knew that they must have taken chances if they did make it? Probably not one in the history of railroading.

We are fully aware that the situation as to these matters is very much better on some roads than on others, and that on two of the roads where the recent collisions occurred equipment and operating methods are, in the main, conspicuously good; but the very fact that such accidents, due to such causes, did occur on two such splendidly managed roads as the Burlington and the Lackawanna, accentuates how much in need of remedy the conditions in general are.

The duty of applying the remedy, therefore, rests primarily with the railway managers. And what is the remedy and how is it to be applied? How is the *cause of the causes* of accidents to be removed? It would seem there can be only one answer. There must be stern discipline for taking any risks, not merely for causing or almost causing an accident by having taken them. There must be thorough instructions as to what risks are, and how to avoid them, just such instructions as the "safety first" movement is leading up to, but extended to every man in every department of every road. There must be patient drilling on what to do in every conceivable case, and careful analysis of all possible contingencies in each man's daily work, in order to cultivate in him not only the ability and disposition to choose, but also the habit of choosing the safe course without delay or hesitation. There must be more surprise signal checking on most roads, and surprise checking must extend on all roads to more than the observance of signals. If collisions must occur let them occur in the examiner's car where no lives have to pay for the lessons.

In addition, the promise that no engineman will be censured for losing or not making up time, or for not running fast, when it is not considered safe to do so, must be changed to the positive, unequivocal statement that there *will* be a substantial penalty for every case of running fast when it is not safe to do so. Several roads have lately begun to emphasize the rules requiring cautious running in fogs, and careful attention to conditions at points where the right to proceed is governed by signals. This stand is conspicuous by its very newness, showing that it hasn't been the usual thing in the past, and emphasizing the fact that it is not, even now, common to all roads. If engineers were told in all cases "make the time if practicable, but obey the rules" instead of in many cases "obey the rules—but make the time," there wouldn't be so much unsafe running.

The remedy is a problem of organization precisely similar in character to, but, of course, on a vastly larger scale, than that required for fire drills in a school or industrial plant, or for battle practice on a man-o'-war. Its application will require the "safety first" idea to be extended into every office of a superintendent, general manager, president, or board of directors, as well as into every shop and yard. It needs to be extended into the halls of legislation and the offices of railway commissions where the fact is not yet recognized that a policy of starving the railways, and then demanding heavy expenditures for safety is utterly inconsistent and unpractical. It needs to be extended into the lodge rooms of the railway brotherhoods, where the idea now too much prevails that it is more important to save employees from just punishment than to save them from injury or death.

The results of the "safety first" movement wherever it has gone have been excellent. The team work spirit has been fostered, and each man has come to feel that to an extent, and particularly insofar as his brother's condition and acts effect his own safety, he is his brother's keeper. When stockholders, directors and railway regulating authorities put safety first there will be a great reduction in collisions. When general managers are judged as to their ability to operate a road by the standard of "safety first" and public regulation insists less on low rates and earnings and more on low accident figures, to secure which requires large earnings, wrecks such as these will be reduced in number. And when it is known that superintendents are being and will be selected for promotion, on a basis of efficiency in which safety is the principal factor, then operating officers will give and employees will feel the stimulus, the co-operation, and if need be the compulsion, that will cause them to prevent the preventable disasters.

THE EXPRESS RATE CASES.

IT is probably safe to say that the Interstate Commerce Commission has never rendered a more sweeping opinion than that in the express company cases. The Supreme Court has said that "in no proper sense is the public a general manager" of the railways, but the powers of the official staffs and boards of directors of the thirteen great express companies all combined seem feebleness itself compared with the authority the commission seeks to exercise in these cases. And any serious attempt to contest the matter in the courts would very likely be followed by parcels post legislation that would almost put the express companies out of business.

The commission has not only proposed a drastic reduction of express rates and outlined an entirely new system of stating rates and classifications, but it has prescribed new rules, practices and methods of doing business down to the minutia of billing, routing and other details. By regarding the express company as an agency of the railway, the opinion may even necessitate a complete revision of the plan of compensating the railways for transporting express, although as to the reasonableness of the amount paid to railways by the express companies the commission expresses no opinion.

That the opinion is so comprehensive in the matters it passes on and the changes it proposes is doubtless due largely to the fact that the express companies have only recently been made subject to the commission's jurisdiction. Until the passage of the Hepburn act their interstate business was left entirely unregulated. The commission has attempted to accomplish in one decision more than has been accomplished in 25 years in the regulation of the railways.

The public has had a real grievance against the express companies which has grown until as Commissioner Lane says, "The test of the express company as a public utility is at hand. Certainly it is not deniable that the express company has to no slight degree lost the confidence of the people it serves and is regarded now as only on probation." The managements have themselves largely to blame for having made such a report possible. They have failed to take to themselves the lessons that have been so strongly and with such difficulty impressed on other public utility corporations. They have done little to defend themselves or to moderate the storm of public condemnation that has now overwhelmed them, and much of what they have done has been belated. When rates have been reduced by state action they have sometimes offset the effect by readjustments in the intricacies of the graduate scales, and while the profits of railways and other utilities have been undergoing reductions by orders regulating their rates and service, the express companies have in many cases materially advanced their charges, and one of them has declared a 300 per cent. dividend. This was brandishing the red flag before the bull.

As for the report itself, one seeks in vain through its 600 pages of text and appendix for any definite statement of a reason why, aside from alleged discriminatory practices complained of,

the present rates are found unreasonable. Apparently this has been taken for granted from the beginning. But when one reads the appendix, replete with statements of examples showing enormous percentages of profit based on the value of the property employed and the capital invested, and reads the statement in the report that "since the Civil War, so far as our researches have extended, no express company in the United States has been forced into bankruptcy," he surmises a reason for the view taken. However, it is admitted in the opinion that "under the existing system of contracts it is quite evident that an express company might grow extremely wealthy and accumulate a great deal of property under rates that were in all ways reasonable, for the value of its accumulations year by year depends not alone on the rates that it charges or its own expenditures as an operating company, but upon the contracts which it makes with the railways which carry the express traffic." The contention of many of the complainants that express rates should be based chiefly on the value of the property used in the business is dismissed with the statement that the comparatively insignificant property of the express company may not be considered exclusive of that of the railway used in giving the service and that "once this is done it is quite evident that all of the estimates of the monumental earnings of the express companies based upon their investment in property are misleading." On the other hand, there is no real substance, the commission finds, in the contention that rates may be made with respect to the capitalization of the companies, because "to allow a return upon this basis would put a premium upon mere bookkeeping methods which have no foundation other than the capricious policy of its owners."

In connection with a statement that the total dividends paid by the ten leading companies since 1854 have amounted to $212,085,392, Commissioner Lane says: "Beginning 60 years ago with practically no assets whatsoever other than favorable contracts with one or more railroads, the express companies have out of their rates and the profitable investment of the proceeds of their operations been enabled to pay large dividends upon shares representing no investment and amassed over $150,000,000 of property," but "We may not fix express rates upon the basis of the earnings of the express company, for this is a matter which we cannot control. The higher the rate the greater the proportion the railway might exact, and thus with each increase in the allowance there would arise plausible excuse for increase in the express rates." Nor does the commission feel justified in taking as any settled standard the operating expenses of the express company outside of its railway percentage, "excepting as these figures tend to disclose by contrast between the various companies, whose figures widely differ, and by comparison with outside agencies rendering similar or partially similar service, what might be the reasonable expense to which a carrier of this character is put."

Similarly, the relationship between express and freight rates is dismissed as an important consideration in the fixing of express rates, but it is stated that the relation between the return for the carriage of passengers and express matter "has been borne in mind."

"What then may be said to be the standard of a reasonable express rate?" asks the commissioner. The official answer is: "No one consideration," which was probably the only answer that could be made. The commission has, however, reached eight conclusions bearing on the subject, of which the most comprehensive is: "That the rate should include a return to the express company which will compensate it with profit for the expense of the service which it gives, there being added thereto in the formation of the total rate the proper charge which it may reasonably make for the service which the railway gives." No longer may the railways be criticised for making rates by "judgment" or by "intuition," when a governmental body at one fell swoop names an entire system of rates between 35,000 express stations for 13 express companies transporting over 300,000,000 packages a year, and merely states the conclusion it has reached and the factors it has taken into consideration without indicating the relative weight it has given to any of the factors.

What is to be the effect of the decision on the status or earnings of the companies it would be futile to predict. The companies have stated that "the proposed rates would not produce enough revenue to cover the cost of business, especially as the changes in methods of business to be adopted will increase the cost." Some of the reductions are as great as 50 per cent., while some rates are advanced. It has been roughly estimated that the average reduction is about 15 per cent. For the fiscal year 1911 the 13 express companies had a gross transportation revenue of $149,311,485, out of which they paid to the railways $73,956,455, leaving to themselves $75,355,030. Their operating expenses amounted to $67,996,759, and their net operating revenue was $7,358,271. A cut of 15 per cent. would reduce the gross transportation revenue by $22,396,722, of which the railways and the express companies would each lose about one-half, reducing the amount left to the express companies to about $4,000,000 less than enough to pay operating expenses.

The commission evidently desires it to be understood that the reductions proposed will stimulate traffic and earnings, for it says that it is unquestionably within the power of the railways to put the express companies out of business by insistence upon such a large percentage of return that it could not be overcome by a decrease in express operating expenses, and that a reduction of rates would have the same effect, provided the railways or the express companies themselves could not find means either by the increase of traffic or the reduction of expenses or of the cost of express privileges to preserve the existence of the express companies. But the commission has implied before that reductions in railway rates would stimulate business, and the railways have learned by experience not to count such chickens until they are hatched.

On the other hand, many of the rules and practices ordered by the commission, which have been agreed to by the companies, are such as should work a real and much-needed reform in the conduct of the express business, and these together with the commission's zone and block system of stating rates in such a way that one who is not an expert in reading tariffs may know what rate he should be charged, should help to restore to the public mind the confidence which has been largely destroyed by the difficulty of understanding the present rate system.

NEW BOOKS.

Cylinder Performance of Reciprocating Engines. By J. Paul Clayton, assistant in the mechanical engineering department of the Engineering Experimental Station of the University of Illinois, Urbana, Ill. Published by the University of Illinois, Urbana, Ill., as Bulletin No. 58.

For many years the only accurate method of ascertaining the steam consumption of an engine has been to measure or weigh in some manner the water used. It has been discovered, however, that the quality of the steam present in the cylinder at cut-off controls the form of the expansion curve of the indicator diagram in a perfectly definite way. From this fact there has been developed a method of computing the steam consumption of an engine from the indicator diagram alone to within 4 per cent. of the actual consumption as measured by test. There has also been developed a method of obtaining the volumetric clearance of a cylinder using steam, gas, air, or ammonia to a degree of accuracy almost as great as the method of filling the clearance space with a known weight of liquid. The bulletin contains an exposition of the methods employed in obtaining the steam consumption and clearance, and also methods of detecting the leakage from the indicator diagram with the engine in regular operation.

Letters to the Editor.

LOCOMOTIVE BOILER DESIGN.

Camden, N. J., July 7, 1912.

To the Editor of the Railway Age Gazette:

In a report of the chief inspector of locomotive boilers, which appeared in your issue of May 17, page 1128, the statement was made that the lower end of the water glass was only 1 in. above the highest part of the crown sheet on an engine which recently exploded. The number of boiler explosions on account of low water is entirely beyond the limit of what should be expected; but are the men in charge always absolutely to blame? I make no apology for them, but I do censure the designer. In his desire to have the ratio of heating surface compare favorably with the grate area, he has placed the crown sheet too close to the roof sheet in order to get in a greater number of flues. Theoretically, this looks correct; but in practice I find the higher flues are not of the practical value they should be because the draft (or heat) does not pass through them. This can readily be seen on any engine, when working hard. Neither have I been able to adjust the front end to accomplish this result satisfactorily.

Again, as the crown sheet makes 60 per cent. of the steam generated in a boiler, it should have a generous supply of water. Five to eight inches is not sufficient, 10 to 12 would be much better and allow a little reserve in order to shut off the injector occasionally, which the modern boiler does not admit of.

The water level is also too close to the throttle opening, resulting in wet steam. The ebullition on the crown sheet being much greater with the small quantity of water, is conducive to priming, especially in an alkali district. Would it not be better to sacrifice, say, the two upper rows of flues, than to let an engineer take chances when dropping over a hill and letting the water get out of sight in the glass, even if "he does know where it is"? And this is continually practiced with disastrous results.

A. O. A.

QUESTIONABLE USES OF TRAIN ORDER FORM 19.

San Francisco, Cal., June 21, 1912.

To the Editor of the Railway Age Gazette:

J. P. Finan's article on the *Railway Age Gazette* of March 8, 1912, relative to the unrestricted use of the 19 form of train order is not in all respects conclusive. I am not deeply impressed with some of the arguments he puts forth against the use of the 31 form, although I am an advocate of the use of the 19 form wherever consistent with safety. You may take any one of a half dozen of his examples—the conductor reading to engineman, the engine pulling past the signal, etc., and it will be seen that disobedience of plain rules is what is the matter. In short Mr. Finan, after citing all these violations of rules which caused wrecks, practically admits that it was not the 31 form after all, but "man failures," caused principally by violations or ignorance of the rules. Rules may be made until the end of time, but of what value are they unless they are complied with?

I desire to have Mr. Finan enlighten me on some of the conditions which his unrestricted use of the 19 form creates:

1. If orders are issued to the superior train at the meeting point, and it must be admitted that it is often necessary, what is liable to be the result if the operator is out in front of his office handing up 19 orders, giving the usual so called "high ball"?

2. When necessary to restrict a train which has been cleared or the engine of which has passed the train order semaphore, and the operator receiving the order for the superior train repeating or sending the X-response, what is there to inform the despatcher that the order has been delivered to the superior train before he completes it to the inferior train? Will he in all cases wait until the operator has delivered the 19 order to both the conductor and engineman of the superior train and get his verbal assurance of such delivery?

3. When necessary to create an extra under example 3, form G, what assurance has the despatcher that all trains over which such extra is given right have received the order before authorizing the extra to move? If the extra is authorized to move under this form before all trains over which it has been given right has received the order is it not a lap order, or a hazard of an accident? It would not be practical to say, take siding and not leave each station where order is placed for inferior train; space and time will not always permit.

4. If it is desired that a time order be reduced, how is the despatcher to know positively, as he must, that all inferior trains holding the 30 minute run-late have received the annulment thereof before permitting the train to run under the 20 minute run-late?

5. When a train is restricted at a point not a telegraph office, or where the office has been closed, if the 19 form is used how does the despatcher know that the order was delivered to such train before permitting the inferior train to move into the non-telegraph station against the superior train?

6. When a work extra is given an order not protect against extras, and it is afterward desired to have it protect against a specified extra, if the 31 form is not used how does the despatcher know that the work extra has received the order before permitting the extra to move over its territory?

The 19 form of order is a valuable one and in every case where it can be used with safety let us use it, but in my opinion under no circumstances should its unrestricted use be permitted. Under certain restrictions the 19 order is being used on the Pacific system of the Southern Pacific Company with absolute safety, and 85 per cent. of the train orders issued are of the 19 form.

William Nichols,
Southern Pacific Company.

The first sod has been turned on the railway line from Parkes to Peak Hill, New South Wales.

A railway is proposed from Coronilla, a harbor on the Atlantic coast of Uruguay near the Brazilian border, to Santa Rosa, on the Uruguay river, also near the Brazilian border, and now connected with the Brazilian railway systems on the Uruguay Central Railway. The harbors of Coronilla and Santa Rosa are to be enlarged and improved, and the country bordering the new line is to be opened up to agriculture. There is also a proposal to utilize the water falls connected with the building of a canal from the harbor of Montevideo through the provinces of Florida and Canelones, for the construction of an electric railway from the city of Montevideo to Colonia. From the latter place a service of ferry boats to Buenos Aires is also contemplated.

The two motor cars which were made by the McKeen Motor Car Company, Omaha, Neb., and which were recently sent to Victoria, are now in service, one on the Ballarat-Maryborough line, and the other on the Warramboll-Hamilton line. It is expected that these cars will save 55 minutes on the journey on the first line and 65 minutes on the latter. A large increase in passenger traffic is also anticipated as a direct result of the operation of these cars. It is doubtful whether any more of these cars will be ordered because the railway authorities have heard that steam driven motor cars, such as are used on the Great Western Railway of England, are much cheaper and are rendering good service in sparsely populated districts. These cars travel at the rate of from 35 to 40 miles per hour, and, when required, trailers may be attached. Two of these cars have already been ordered by the Victorian railways. Seating accommodation will be provided for 54 passengers as follows: first class, 22 passengers; second class, 32 passengers.

YARD AND SHOP IMPROVEMENTS AT BOONE, IOWA.

Of Particular Interest as Representing Chicago & North Western Practice for a Terminal and Repair Plant of Medium Size.

BY H. RETTINGHOUSE,
Division Superintendent, Chicago & North Western, Boone, Iowa.

The Chicago & North Western has recently completed at Boone, Iowa, improvements of considerable extent, consisting of the enlargement and remodeling of the switching and classification yards, and the construction of modern shop and engine house facilities. Boone is at the junction of the East and West Iowa divisions, 202 miles west of Clinton, Iowa, and 340 miles from Chicago. The headquarters of the West Iowa division, the main line of which extends to Omaha, a distance of 150 miles, are located at Boone. The yard and shops are, therefore, geographically located at a very important center, and it had been apparent for some time that the yard, engine house and shop buildings and facilities were not commensurate with requirements. Plans were prepared in 1909 for the enlargement and rearrangement of the yards and the centralization of the engine house and shop facilities by the erection of modern buildings and equipment.

The general plan of the Boone yards shows the location of the old shop and the first engine house a short distance from the station and situated close to the business portion of the city. The old engine house was abandoned as such in 1887 and converted into a shop, after a new engine house had been built three-fourths of a mile farther east, where the railway had acquired spacious grounds for yard and shop purposes. The general plan included also the elimination of all street and highway crossings, and with the exception of a little frequented highway at the extreme eastern end of the yard lead, there are no grade crossings from Story street east for a distance of 1¾ miles.

Following the general layout as decided on, authority was given in 1910 for the construction of cinder pits, a new 80 ft. turntable, a coaling plant and penstocks. This part of the work was started early in April, 1910, and completed in October of the same year. Early in 1911 authority was given for carrying out the rest of the plans. The engine house included in this authority is the third one built in Boone, each having been larger than the one it replaced and commensurate with the then existing requirements. It occupies the site of the house built in 1887, with the exception of 12 stalls which had been extended, remodeled and thoroughly overhauled in 1909 to accommodate the larger power then being put in use.

Great difficulties were encountered in the erection of the engine house and shop plant, and the construction of the yards in 1911, as they occupied for the most part the site of the old plant which had to be removed piecemeal, so as not to interfere with the operation of the terminal. The work was started early in April, 1911. The yard was completed and turned over to the operating department on August 1, and the engine house and shops, with the tracks serving them, on November 1.

YARDS.

In order to provide the roadbed for the yard extension of approximately 18 miles of track, it was necessary to move about 65,000 cu. yds. of material and to extend various waterways. The old yard had a capacity of 450 cars, and the new one has a total storage capacity of 1,400 cars. It consists of two distinct systems, the one nearest the main tracks, for eastbound movements, being designed for nine tracks; and the westbound yard, to the south, for ten tracks. The eastbound yard now has eight tracks and the westbound, 9 tracks, all of a uniform length of 3,250 ft. in the clear, allowing for 80-car trains.

The tracks are laid 13 ft. center to center, with the exception of five next to the main tracks in the eastbound yard, which are on 14 ft. centers. These five formed the main portion of the old yard, and it was decided not to disturb them. Each system has separate ladder and running tracks, and double running tracks are provided for at both ends of the yards for in and outgoing locomotives. Way car tracks of ample capacity are placed at the west end of the eastbound yard and at the east end of the westbound yard. South of the main yard on the west end is located the repair yard, consisting of four tracks laid 16 and 20 ft. centers. Where the tracks are on 20 ft. centers, narrow gage tracks are laid between for the conveyance of material. There are 5,930 ft. of track in the repair yard with a capacity for 150 cars. This yard is fully equipped with air and steam lines.

South of the repair yard is the system of tracks serving the ice house, engine house and shops, and these are connected at each end of the yards with running tracks for in and outgoing locomotives. South of the sand house are two tracks serving the bridge material yard. All running tracks, ladders and switches are laid with 80 lb. rail and the rest of the tracks with 60 lb. rail. All main line switches are No. 10, and the yard switches are No. 8. A mechanical interlocking plant is located at each end of the yard.

ENGINE HOUSE.

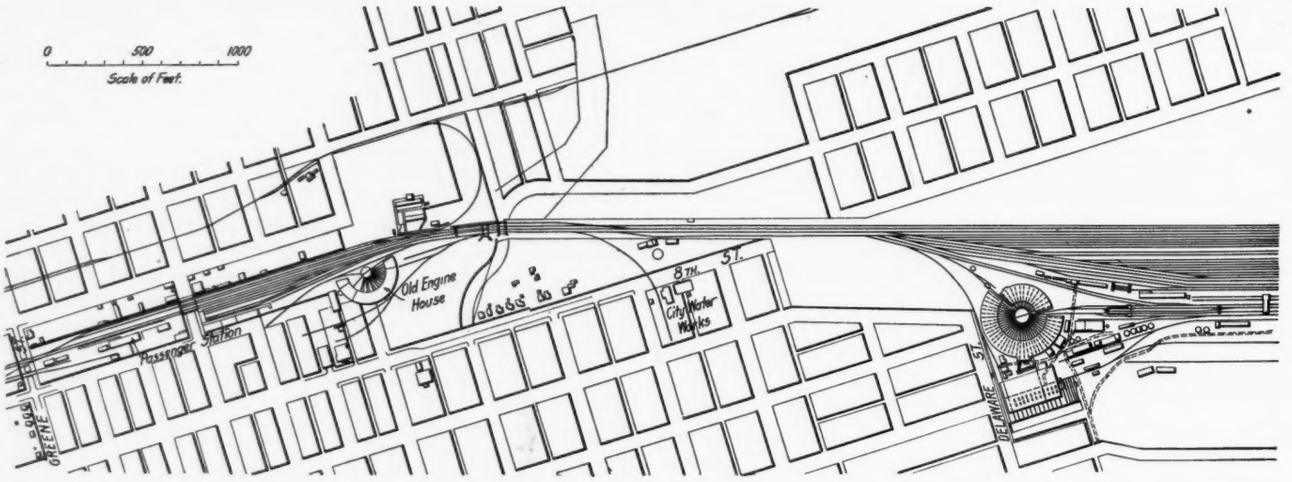
The new part of the engine house is of the type designated as "Chicago & North Western No. 1 standard brick engine house, 90 ft. type." All foundation work, including the pits and outside walls up to and including the window sills, is of concrete. The walls above the window sills and all the fire walls are of brick. The new house has 36 stalls, and the remaining part of the old house has 13 stalls, a total of 49 stalls. Two fire walls divide the new house into three sections of 11, 12 and 13 stalls. The yard is such that eventually the full circle of a 90 ft. house will be constructed without interfering with its layout; this will give a total of 57 stalls, besides an allowance for the space of three stalls taken up by one double and one single in and outgoing track. The house is heated with a hot blast system, motor driven, installed by the Greene Fuel Economizer Company. The fan house forms an annex to the engine house and has been built with a view of eventually installing a second heater to take care of the completed house. The heater house contains 120 metal lockers and a series of wash bowls for the use of engine house employees.

The turntable is a North Western standard 80 ft. deck girder type made by the Lassig plant of the American Bridge Company. It is driven by an air motor, but in case of failure it is arranged that locomotives can furnish air for turning.

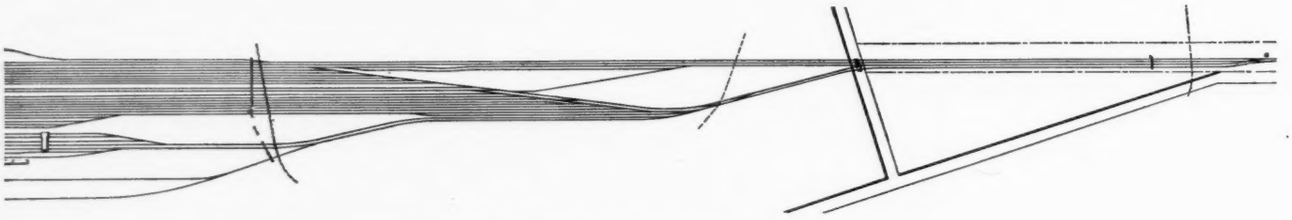
A complete and modern boiler washing and refilling plant is located in the annex to the engine house, and was installed by the National Boiler Washing Company, which company also had the contract for installing the piping for the entire plant, except for the general water supply pipes outside of the buildings, which were put in by the railway forces.

Attention is directed to a unique feature adopted for new engine houses by the Chicago & North Western, consisting of concrete walls built under the rails of the engine house tracks for a distance of 8 ft. outside the doors. This arrangement is for the purpose of preventing the heaving of the track in front of the doors by frost, and assures the ability to open the engine house doors under all conditions.

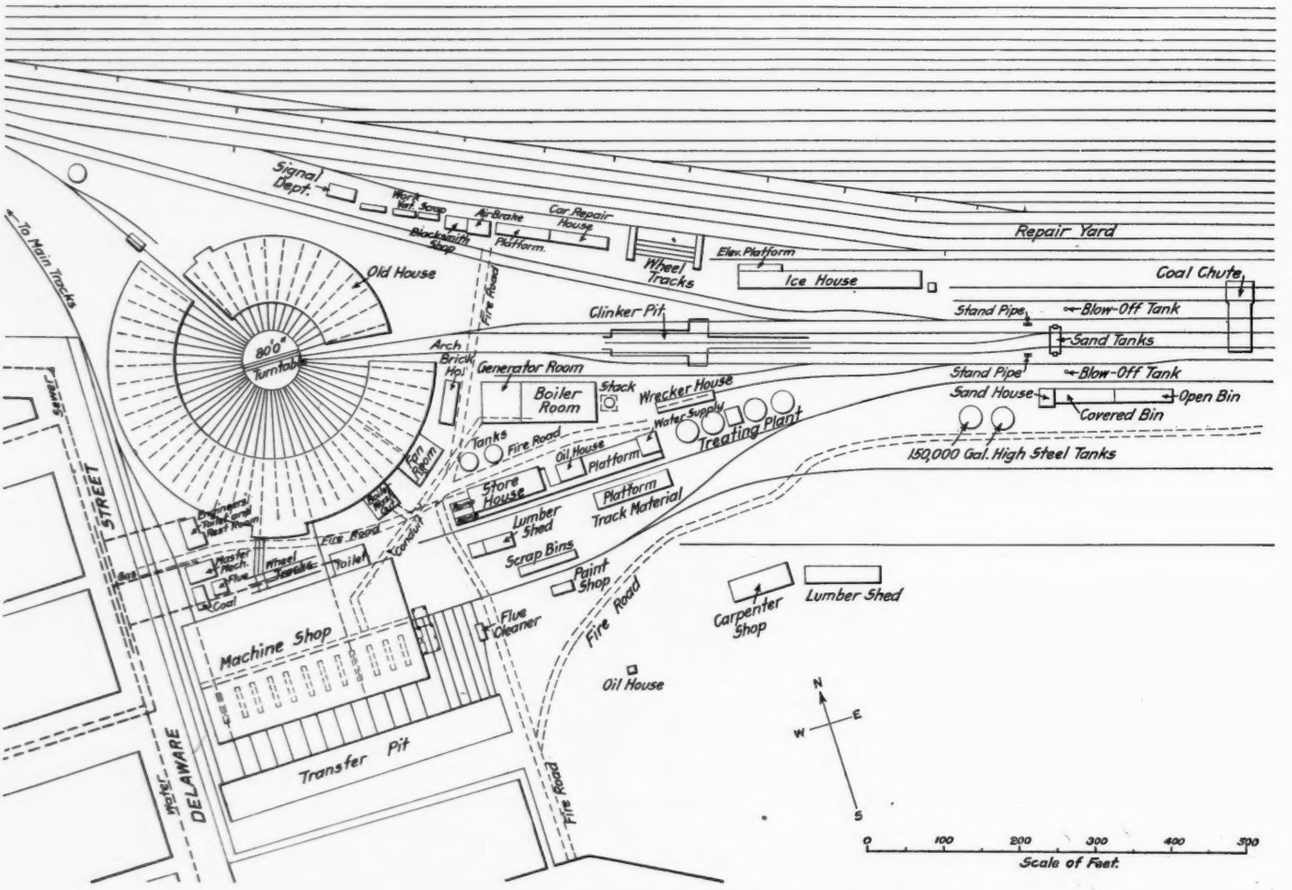
The house is equipped with the latest style of transit smoke jacks, furnished by the H. W. Johns-Manville Company of Chi-



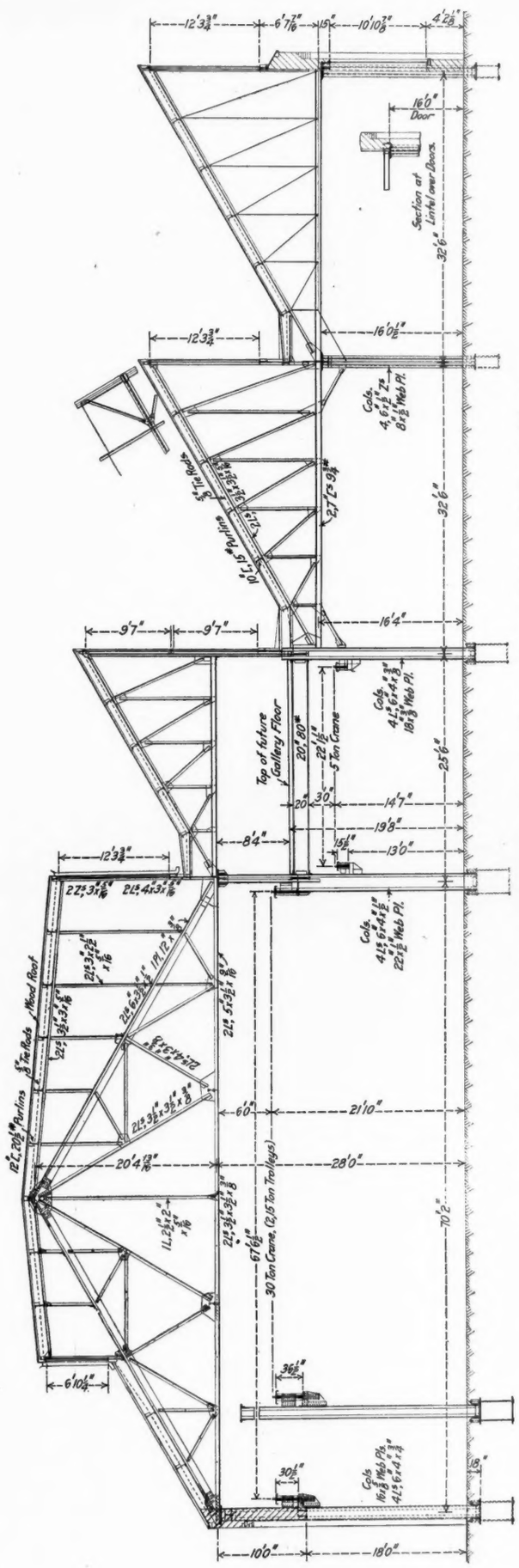
General Plan of the Boone, Iowa, Yards, Engine Terminal and Repair Shops; Chicago & North Western.



The Remaining Part of the Yards at Boone, Iowa.



Arrangement of Engine Terminal and Repair Shops at Boone, Iowa; Chicago & North Western.



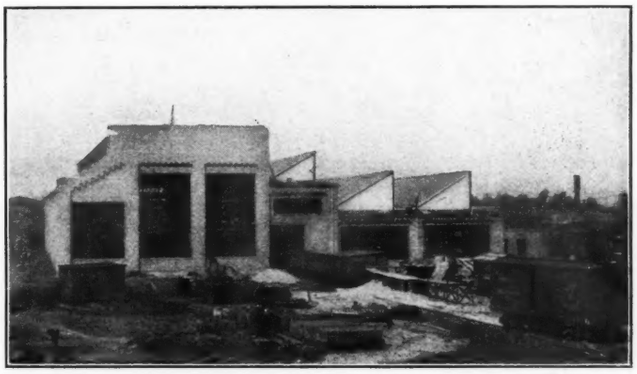
Cross-Section Through the Locomotive Repair Shop at Boone, Iowa; Chicago & North Western.

cago. The floor is vitrified brick, laid flat on a well packed cinder foundation 12 in. thick and a 2 in. cushion of sand.

LOCOMOTIVE REPAIR SHOP.

The locomotive shop is 164 ft. wide and 293 ft. long. The foundations of the outside walls and the interior columns are of concrete, and the side walls are of brick. A cross-section of the building is illustrated. The columns which flank the main erecting shop and the center aisle also form the supports for three traveling electric cranes. Two cranes of 67 ft. span each, and of 10 and 30 tons capacity, are located over the erecting tracks. One crane of 5 tons' capacity is located over the center aisle. The roof sheathing consists of 2 in. D & M lumber fastened to 4 in. x 6 in. nailing strips, which in turn are bolted to steel channels which form the purlins. The flat parts of the roof have a built-up gravel finish, and the steel portions are covered with "Paroid" roofing.

The floor of the building is made of 8 in. wooden blocks on a well packed cinder foundation with a sand cushion 1 in. thick between the blocks and cinders. This is an experiment, the former custom of using creosoted wood blocks being departed from in this case. That portion of the building which is devoted to machine, blacksmith and boiler shop work has a roof of the sawtooth type with ample provision for light, the perpendicular portions being entirely of glass. All sash in this portion, as well as of the entire building, are of the Fenestra type. The main entrance doors in the erecting shop are made in two sections and are



End View of the Locomotive Repair Shop.

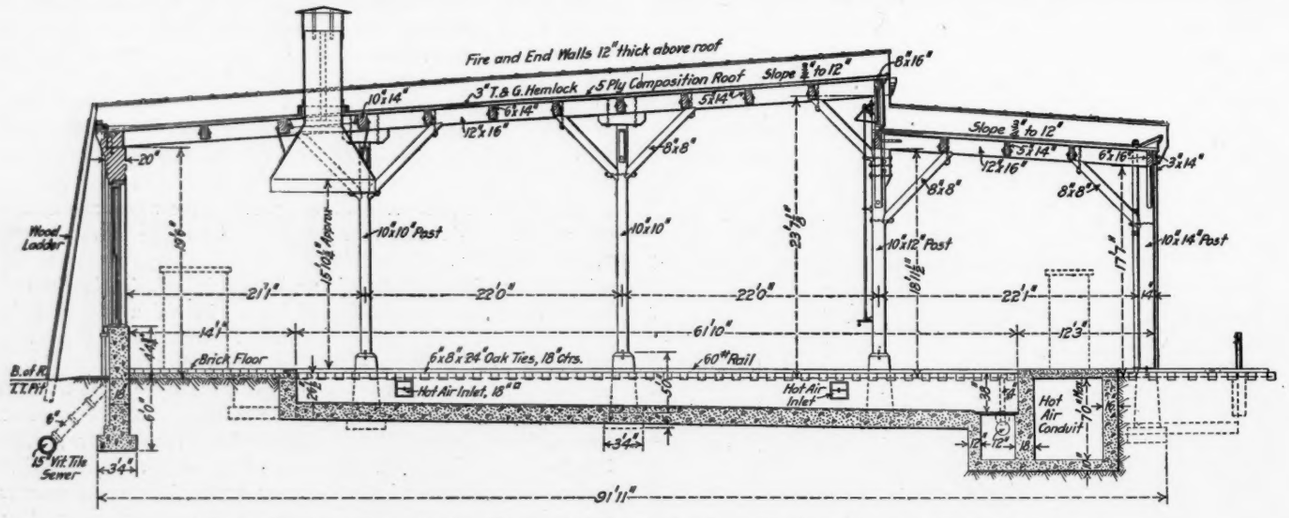
lifted by differential hoists to clear the entire door opening of 12 ft. 6 in. x 18 ft.

The erecting shop has twelve tracks, each provided with a pit. The track farthest west is occupied by a locomotive hoist, electrically operated, and consisting of four jacks of 50-ton capacity each, or a total lifting capacity of 200 tons This is shown in one of the illustrations. The jack, as well as the three traveling cranes previously mentioned, were furnished and installed by the Whiting Foundry Equipment Company of Harvey, Ill. A track connected with the yard system runs the entire length of the building through the center aisle, and another through track crosses the center aisle and connects with the erecting track at the west end. The ninth erecting track from the west end continues transversely through the building and connects with one of the engine house tracks. In the center of the building, and next to the center aisle, is located the tool room, 40 ft. x 46 ft., which is amply lighted by continuous sash on all four sides. Above the tool room, and reached by iron stairs, is the foreman's office. The location of the office affords an opportunity to observe all portions of the shop.

An annex to the machine shop on the north side, 32 ft. x 48 ft., contains three rooms—washroom, toilet room and locker room—all of which have concrete floors and are equipped with modern fittings. The building is heated with direct steam by pipe radiation. The steam heating system of this and other buildings was installed by the National Boiler Washing Company

of Chicago. Steam, water and air pipes enter the building through a concrete tunnel, 5 ft. x 6 ft., near the northeast corner, which connects with another one running the entire length of the building under the center aisle and track. All the machinery in the shop has concrete foundations, and most of it is belt driven from electric motors. A few of the larger machines are directly driven by motors. Adjoining the east wall of the building is located a lye vat made of concrete and served by an overhead traveling crane, which has an air hoist attached.

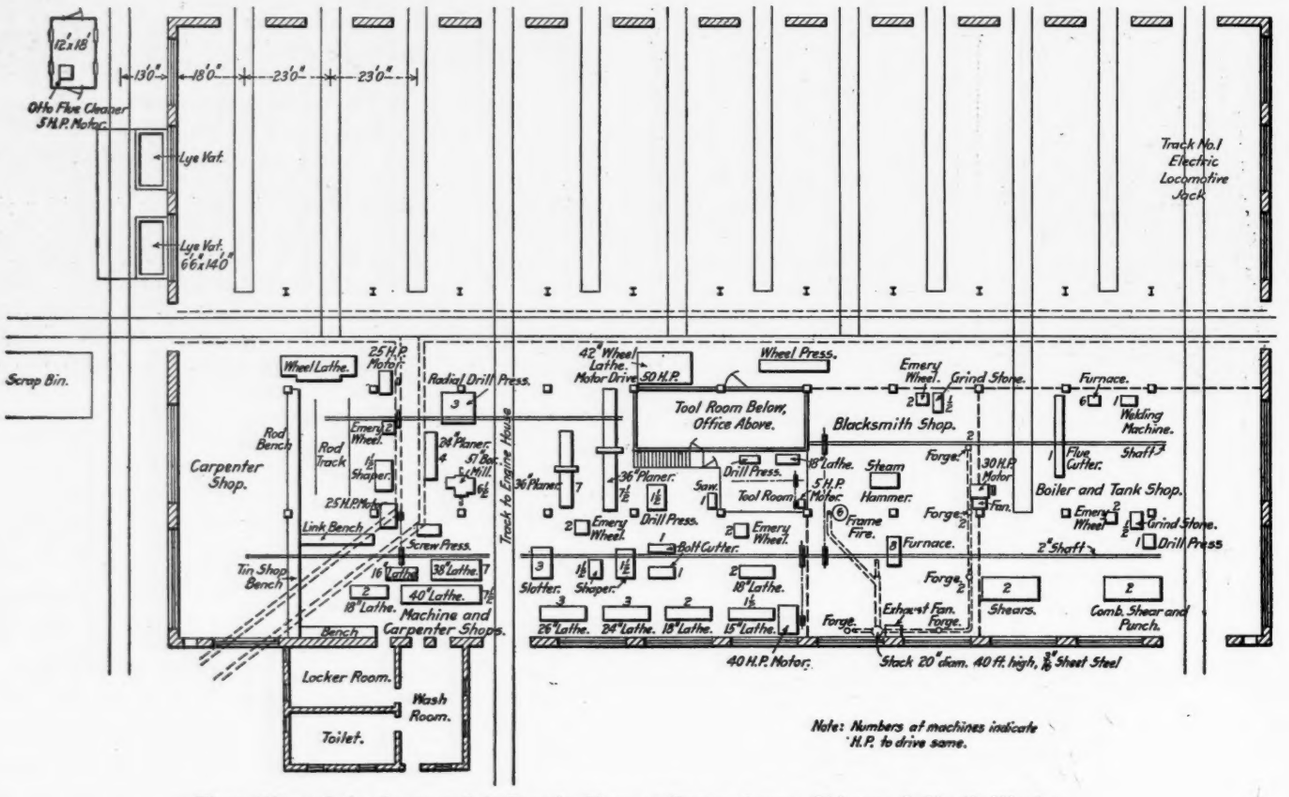
The transfer table is located south of the main building and serves the 12 erecting tracks. The pit is 393 ft. long, and there is a space of 50 ft. between the side of the building and the pit. It extends 18 ft. beyond the west end of the building, where the receiving track enters, and 82 ft. beyond the east end of the building, where several storage tracks and the tube cleaning machines are located. The pit walls and those supporting the turntable are of concrete. The supporting walls are capped with 8 in. x 16 in. fir timber laid flat and fastened to the walls with bolts anchored in them. The running rails for the transfer table are placed on the capping and have tie plates every 12 in. The transfer table is electrically operated and was furnished by George P. Nichols & Bro. of Chicago.



Cross-Section Through the Chicago & North Western Engine House at Boone, Iowa.

POWER HOUSE.

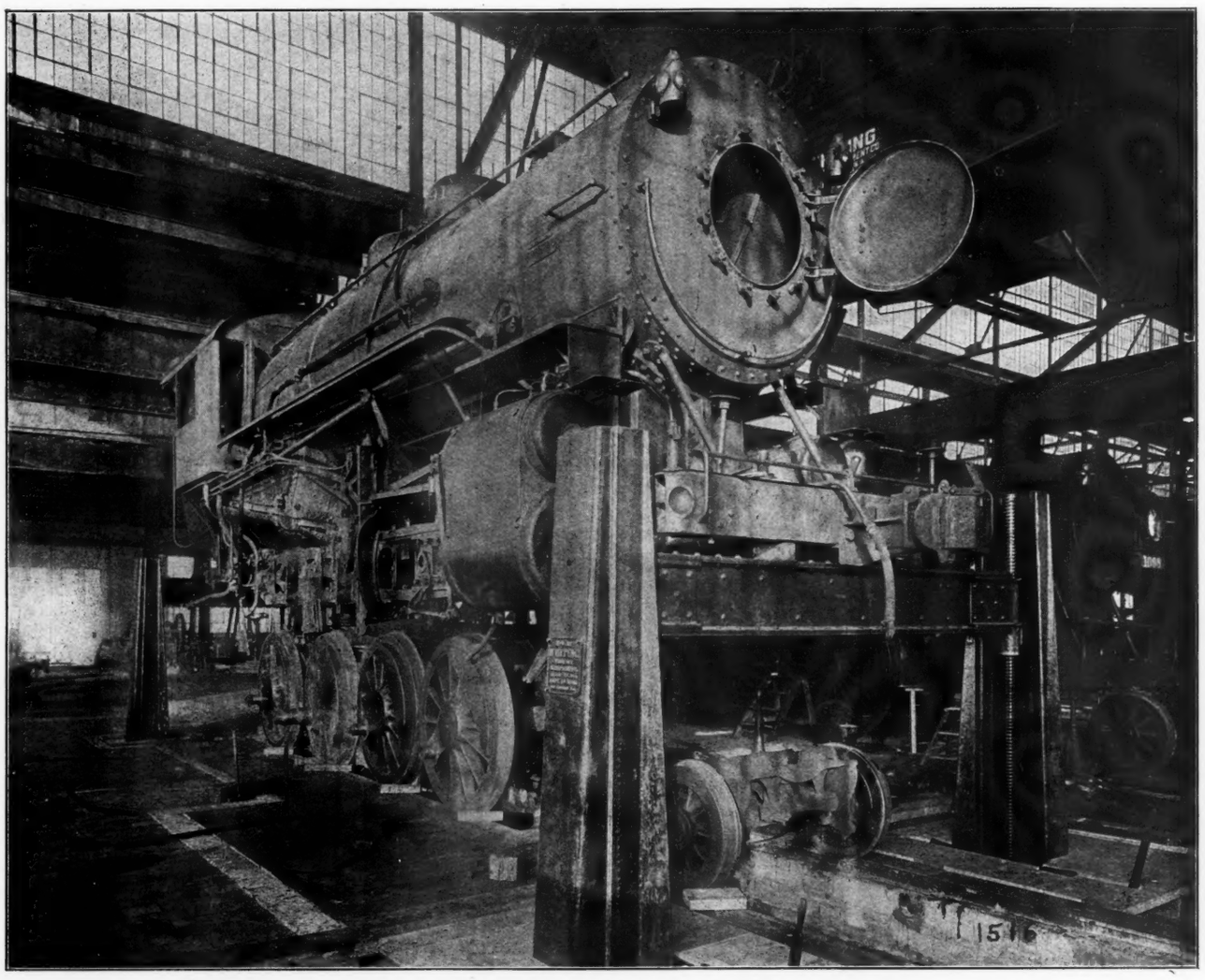
The power house is 54 ft. x 150 ft., and has brick walls on concrete foundations, with a steel roof construction supported on the outside brick walls only. A section showing the roof truss, also the end view and a partial side view of this building, is illustrated. The building is divided by a brick wall into boiler and generator rooms, and has a concrete floor throughout. The



Floor Plan of the Locomotive Repair Shop at Boone, Iowa; Chicago & North Western.

boiler room is 52 ft. x 100 ft., and contains six boilers, three double settings of 150 h. p. each; foundations are placed for two additional boilers. A heavy sheet iron breeching, 5 ft. x 7 ft., connects the boilers to a stack located east of the building. The stack is 7 ft. inside diameter at its base and 125 ft. high; it is made of perforated radial brick resting on a concrete foundation, and was built by the Alphonse Custodis Chimney Construction Company of New York. There is a track directly north of the building and coal is placed in the coal bins through openings provided with heavy metal shutters.

The generator room, occupying the west 50 ft. of the building, is designed for generators to furnish electric light and power for the entire plant and yards, but arrangements have been made whereby current is furnished by the Boone Electric Company. An air compressor, made by the Ingersoll-Rand Company, Imperial type No. 10, has been placed in the generator room, and it furnishes air for the entire plant. The power house building is provided with ample light by means of metal sash of the Fenestra type. The roof frame is sheathed with 2-in. D & M lumber fastened to nailing strips which are bolted to the steel purlins. The roof is covered with 2-ply "Paroid" roofing.



Electric Locomotive Hoist Wheeling a Large Consolidation Engine at the Boone Shops.

STOREHOUSE AND OIL HOUSE.

The storehouse occupies a ground space 32 ft. x 100 ft., and is one story with a basement under the entire building. The main floor is 4 ft. above the top of the rail, or even with the floor of the cars. The walls of the building up to the main floor level are of concrete, and of brick above the floor line. The basement, which is 7 ft. 6 in. high in the clear, has a cement floor and is used for the storing of heavy articles. It has an inclined concrete runway leading to the entrance at the west end. The roof is of shed construction with a fall of 18 in., and the height of the main storeroom is 14 ft. at the front of the building and 11 ft. at the rear. The front and end walls are carried above the roof and the tops of the walls are protected with tile coping. The storekeeper's office is located at one corner and is 12 ft. x 17 ft. In the southeast corner of the building are an oil pump and waste room, which is of fireproof construction and is separated from the store building by brick walls and fire doors. This room occupies a floor space 15 ft. x 16 ft., and has a reinforced concrete floor and roof. Oil pumps are located on the main floor and connect by pipes which run through a pipe tunnel to the oil tanks, located in the oil house which is 20 ft. from the main store building. The oil house occupies a ground space 26 ft. x 34 ft. There is a continuous platform 8 ft. wide in front of the store and oil houses, extending between the buildings and the storehouse track; from the east end of the oil house platform it continues east for a distance of 100 ft. and with a width of 34 ft.

COALING PLANT.

The coaling plant was erected by Fairbanks, Morse & Company under contract, from plans furnished by that firm. The

Looking Down the Center Aisle of the Locomotive Repair Shop at Boone, Iowa.

The Machine Shop Section of the Locomotive Repair Shop at Boone, Iowa.

storage portion of the plant is located over tracks which lead to the cinder pits and engine house in such a manner as to serve all of these tracks. The Linkbelt system is employed for conveying coal, and the entire conveying apparatus is installed in duplicate and is operated independently with separate motors. The capacity of each elevator is sufficient for the whole storage pocket, which has a capacity of 800 tons. However, the conveyors are often operated either alternately, or both at the same time, the latter in case of rush when cars must be quickly released. At present the handling of coal through this plant amounts to approximately 400 tons per day of 24 hours. Except in emergency cases all coal is hoisted during the day time. The two unloading tracks have been built with a 1 per cent. grade which permits of automatically dropping cars from the storage end of the unloading tracks to the hopper and dropping empties from the hopper. This makes it necessary to resort to the car puller, except for starting cars from the hopper over which the tracks have been placed on a level to avoid the possibility of accidents by starting cars while being unloaded.

The storage end of the tracks will hold eight gondolas. The unloading hopper is covered entirely with a net work of breaker bars consisting of ½ in. x 3 in. steel bars placed parallel to the tracks on 8 in. centers, and connected every 10 in. with ¾ in. rods, over which 1 in. pipes are placed as spacers to keep the bars in correct position. Coal is broken by hand after being dumped from the cars. Horizontal conveyors in the bottom of the unloading hoppers convey the coal to the main conveyors by means of a boot, permitting the buckets of the main conveyors to pick up the coal clear of the boot at the passing of each bucket. The dumping of coal from the main conveyors into the storage pocket is regulated through sliding trap doors which permit dumping into any portion of the pockets. Coal is delivered to the locomotives through sheet steel chutes provided with counterweights and undercut gates. Each conveying apparatus is driven by a 25 h. p. electric motor.

SANDING PLANT.

The sanding plant is located directly west of the coaling plant, and consists of a sand house, 20 ft. x 24 ft., with a covered bin 18 ft. x 78 ft., and an open bin 18 ft. x 80 ft. adjoining, making a total storage capacity of 1,600 cu. yds. There are two independent stove sand dryers and screening arrangements. Sand is delivered into the sand towers by air pressure. The sand towers were designed specially for this installation and are shown in one of the drawings. As will be seen, each tower rests on two 12 in. x 12 in. posts which are supported on concrete pedestals and secured to them with two T-rails, built into the concrete. The entire structure is of wood, including the sand tanks, as experience has shown this to be preferable to iron.

CINDER PIT.

The cinder pit is built entirely of concrete, and all retaining walls are heavily reinforced. Particular attention is called to counterforts of that part of the retaining walls which flank the inclined portion of the depressed track. These have proved effective and no movement of the slightest kind has appeared in the retaining walls. There are two clinkering tracks, one on each side of the depressed track. One rail of each clinkering track is placed on concrete retaining walls and cast iron bearing plates, while the other rail rests on channel beams. These beams are supported by cast iron pedestals encased with concrete. The east ends of the clinker pits have been widened out for a length of 24 ft., forming two ash pits on outgoing tracks. Both the clinker and ash pits are paved with vitrified brick. Ample provision has been made for the draining of the pit and a number of hydrants for quenching fires have been installed. All concrete exposed to heat from clinkers has been protected with heavy sheet iron in such a manner as to leave an air space between.

OFFICE AND MISCELLANEOUS BUILDINGS.

The office of the master mechanic and the road foreman of engines is located near the main entrance to the shop grounds, facing Delaware street. North of the master mechanic's office is an old building which has been utilized by remodeling for an enginemen's rest room and for a caller's office and the engine foreman's office. This building is brick with a stone foundation, and was formerly used for a store and oil house. The basement has been divided into two portions, one room being used as a lavatory and washroom, and the other for lockers for use of engineers and firemen. The ice house is 24 ft. x 254 ft.; the east 194 ft., was moved from another location, where it interfered with yard extension.

Power House of the Boone, Iowa, Shops; Chicago & North Western.

BRIDGE AND BUILDING YARDS AND FACILITIES.

Considerable attention was given to facilities for bridge and building work. Ample yard and storage room for timber, etc., was provided, and this is served by two tracks. A stiff legged derrick was erected, with its base 12 ft. above the tracks, which handled the heavy material of all kinds and is at present equipped with a double drum steam hoisting engine, steam being secured from the boiler room. It is intended, however, to replace this with an electric motor. The derrick is in an advantageous position in being placed high above the track, so as to permit piling timber to a considerable height, and thereby placing all the heaviest bridge timber that is needed for a season's work within its reach and doing away with most, if not all, of the handling by hand of such heavy material. A carpenter shop of ordinary frame construction, 28 ft. x 80 ft., and a lumber shed 22 ft. x 100 ft. are located nearby.

WATER SUPPLY AND SEWER SYSTEM.

The water supply is furnished under contract by the city of Boone, which found it necessary to build a new water works system, obtaining the supply from the Des Moines river, about

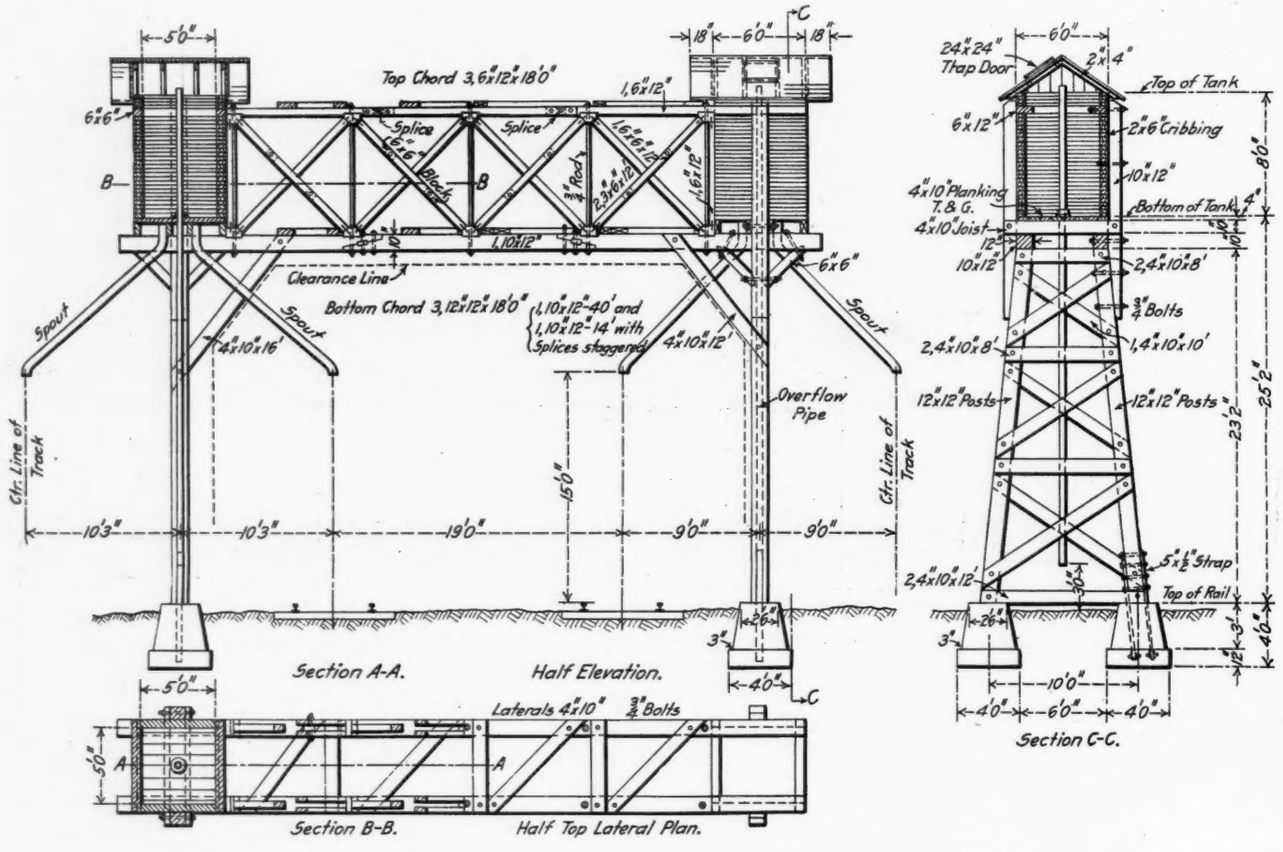
four miles distant. The railway still maintains two wells from which an emergency supply may be obtained in case of failure on the part of the city. Water is delivered through an 8 in. main which runs to a connection with two steel tanks of 150,000 gal. capacity. Each of these tanks were erected under contract by the Chicago Bridge & Iron Company. Two wooden tanks of standard Chicago & North Western design, and of 50,000 gal. capacity each, are located between the west end of the storehouse and the power house. They are connected with the 8 in. main by a 6 in. pipe and serve principally as storage for the locomotive boiler washing and refilling plant. Still another 50,000 gal. woden tank has been placed between the outgoing tracks with a spout for direct delivery for each of the two tracks. The two large steel tanks form the basis of delivery to locomotives which is accomplished by means of two 12 in. penstocks, connected with tanks by 14 in. cast iron pipe. These stand pipes serve

ELECTRICAL EQUIPMENT.

Electric current is purchased from the Boone Electric Company at the rate of 1.9 cents per kilowatt hour for a total consumption of less than 500,000 kilowatt hours per annum, and 1.5 cents for over 500,000 kilowatt hours per annum. The current is supplied at 2,200 volts from the power plant, 7,500 ft. distant.

The transformer installation consists of three Allis-Chalmers oil filled, air cooled transformers, of 150 k. v. a. each, connected in delta, transforming from 2,200 to 440 volts for the power service, and three 25 k. v. a. Allis-Chalmers transformers of the same type, transforming from 2,200 to 110 volts for lighting. The secondaries on the transformers run directly to the switchboard of the railway company, which is made up of two panels, one for light and the other for power.

All switches on the power board are triple pole, quick break, hand operated. The lighting panel is fitted with six circuit



Arrangement of the Sanding Towers at Boone, Iowa; Chicago & North Western.

all of the four lead tracks to the cinder pit and engine house. Eleven fire hydrants have been located throughout the plant, all of which are provided with connections of the same thread as used by the Boone fire department. Fire roads have been built about the shop buildings, and care is taken to keep them open. All hydrants are supplied with fire hose connected up and ready for action. Two carts with reels containing 300 ft. of hose each are also conveniently housed for instant use.

The sewer system consists of a 12 in. main sewer, which runs, after emerging from the shop grounds proper, along Delaware street, and empties in a creek on company ground. All waste water and storm sewage, except sanitary sewage, is taken care of by this sewer, which has been laid low enough to drain the lowest depression of any of the shop or engine house buildings. Numerous manholes have been supplied at the principal junction points. The sanitary sewer from the toilet room and wash rooms is connected with the city sewer system in Delaware street.

switches of 100 ampere capacity, 250 volt, and one main switch of 800 ampere capacity, 250 volt, all triple pole, hand operated. The fusing of the board is done entirely on an auxiliary slate panel, which is mounted behind the board, and on which open link fuses are used throughout.

The transformers and switchboard are located in the power plant building, and the mains are run overhead to the different points of distribution. The wiring in the power plant, as well as in the other buildings, is in galvanized conduits, with Condulet fittings throughout.

In the machine shop the motor equipment is as follows: The 30-ton crane is fitted with the following General Electric motors: two 5 h. p. on carriages, two 22 h. p. on hooks, and one 37 h. p. on travelers; all variable speed. The 10-ton long span crane is fitted with one 5 h. p. on carriage; one 22 h. p. on hook, and one 22 h. p. on traveler. The short span 5-ton crane is fitted with one 7½ h. p. on carriage, one 22 h. p. on hook, and one 5 h. p. on traveler. The two long span cranes are controlled from a

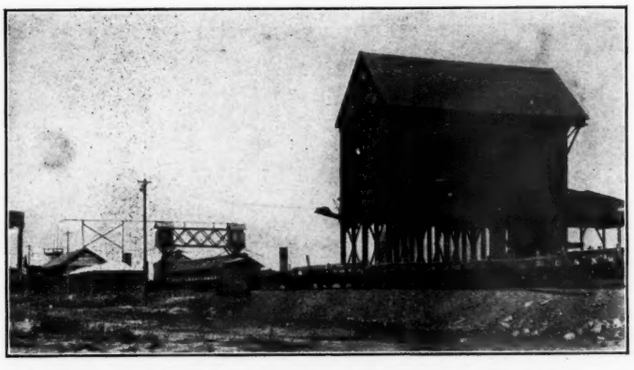
cage, while the short span carriage is controlled by cords from the floor.

The locomotive jacks are operated by a 3 h. p. variable speed General Electric motor. This motor is located in the pit below the floor, while the controller is located at a point from which the operator can see all jacks. The large wheel lathe is operated by a 50 h. p. General Electric motor, direct connected.

The tools in the blacksmith shop are connected to a group drive Allis-Chalmers, constant speed motor of 40 h. p. The boiler shop is operated by a 6 h. p. motor, and the flue cleaner by a 5 h. p. motor. The machine shop proper is driven by a 25 h. p. motor, and the wood working machinery by a 25 h. p. motor. All these are General Electric, constant speed motors. The transfer table is operated by a 75 h. p. General Electric motor, and the current for this table is transmitted by three trolley wires, which are strung two at one side and one at the other side of the transfer table pit.

The heating system for the engine house is operated by a fan driven by a 30 h. p. General Electric motor, 1,200 r. p. m. The coal hoists are operated by one 25 h. p. Fairbanks, Morse & Company motor, and one 25 h. p. General Electric, constant speed motor. The motors are 440 volts, 60 cycle, 3 phase, throughout the whole installation.

The lighting in the machine shop is by means of 67 clusters, which are each fitted with four 100-watt Mazda lamps, protected by an 18 in. glass hemisphere below, and a 30 in. enameled wall reflector above. Excellent results are being obtained by the use of this method of lighting. In addition to this there are three similar clusters at the cinder pit and three in the power plant. The engine house is lighted by one hundred eight 100-watt tungsten lamps, fitted to Benjamin porcelain shades. The rest of the lighting in the building is by means of single cord drops. The lighting current is distributed by 3-phase, 110-volt mains.



Coaling and Sanding Plants; Chicago & North Western.

WRECKING OUTFIT.

Provision has been made for quick handling of the wrecking outfit through the construction of a track leading from the main engine house lead which holds the entire wrecking train. The steam wrecker itself is sheltered in a frame shed 16 ft. x 80 ft., built over the end of track. This building is heated by steam and is located directly east of the power house.

In the preparation of the general scheme of the improvements just described, all departments, including engineering, operating, mechanical, car and electrical, were consulted in order to get the most suitable layout. The work was authorized to be carried out under the direction of the chief engineer, E. C. Carter, who entrusted W. J. Towne, engineer of maintenance on the lines east, with general charge of the work. The writer, who is division engineer at Boone, was in direct charge of the work, with A. W. Merrick, assistant engineer, as field man. The grading of the yards was done under contract with E. L. Burrill of Minneapolis, Minn. The principal buildings were constructed under contract with the C. W. Gindele Company of Chicago. All track work in connection with the new yard and all minor buildings and remodeling of them were taken care of by the forces of the division engineer. All electrical work was done by the company under A. J. Farrely, electrical engineer. Plans for the machine shop and power house were furnished by Charles Frost, architect, of Chicago, and the steel work was designed by E. C. Shankland and R. M. Shankland, engineers of Chicago.

REPORT OF ANNUAL INSPECTION OF EXPERIMENTAL TRACK ON THE GULF, COLORADO & SANTA FE.

The ninth annual inspection of the treated ties in the experimental track on the Baeumont division of the Gulf, Colorado & Santa Fe was made on June 6, 1912, by Dr. H. von Schrenck, supervisor of timber preservation of the Rock Island Lines; George E. Rex, manager of treating plants, Atchison, Topeka & Santa Fe; R. S. Belcher, chemist, Texas Tie & Lumber Preserving Company, and A. L. Koonce, roadmaster, Gulf, Colorado & Santa Fe. The last previous inspection was made in February, 1911, and the report was published in the *Railway Age Gazette* of April 28, 1911.

This section of experimental track comprises about 2½ miles and was installed in 1902, this location being selected for the test because of the extreme climate conditions. During several months each year the rainfall is extremely heavy and the temperature is high, these conditions combining to cause a very short life of untreated ties, as well as to hasten the deterioration of the treated ties. The ties from this track were furnished by the railways and were such ties as are commonly placed in track, being taken out of the regular stock. For this reason some ties have shown a short life in track largely because of defects in the timber or in its seasoning. The ties were treated without charge by preserving companies. On account of the small number of each class they were in some cases grouped for treatment so that the treatment was not in all cases adapted for the individual ties. All of the same wood were laid together in order to secure the same service conditions. Each tie is plainly marked with nails showing the kind of timber, kind of treatment and the year in which it was laid. The track is heavily ballasted between the rails with densely packed sand and the ends of the ties are left exposed. A continuous stretch of pine forest on both sides of the track shades it more or less during the day. No tieplates are used and the track is laid with 60 and 61-lb. rail.

The tables on the following pages show the results of the nine inspections made to date. The columns under each rate give the number of ties removed since the last inspection and the percentage of ties removed since the beginning of the experiment. The last three columns show the number of ties still in track, these ties being divided into two classes, one in which decay is evident, and the other in which the ties are still in good condition. Some of those marked "decay" may be removed in the near future, while others are still good for one or more years' further service. The general condition of the ties in the track are reported to be good. Very little rail wear was evident except in the cases of hemlock ties. The apparent rail cutting evident on many of the ties was due to the adzing necessary because of the changing of rail. Although marked "sound" the hemlock ties in many instances showed signs of severe checking and shattering. The ties treated with Bakersfield crude petroleum, some of which have been in service since 1902, show a remarkable state of preservation. It is particularly noticeable that none of these ties shows even the slightest check. The rail wear on the ties treated with zinc chloride followed by subsequent treatment of Bakersfield oil was very marked, while in those ties treated with Bakersfield oil alone the rail wear is practically insignificant.

We are indebted to George E. Rex, manager of treating plants of the Atchison, Topeka & Santa Fe, for the results of the inspection.

RECORD OF LIFE OF TIES IN EXPERIMENTAL TRACK ON THE BEAUMONT DIVISION OF THE GULF, COLORADO & SANTA FE RAILWAY IN TEXAS.

Kind of Wood.	No. of Ties.	Kind of Treatment.	Year Ins'd.	Nov., 1903.		June, 1904.		Nov., 1905.		Dec., 1906.		Feb., 1908.		Nov., 1908.		Sept., 1909.		Feb., 1911.		June, 1912.		Ties still in track. Number.		
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Good.	Decay.	%
White Oak	196	Untreated	May, '02	...	.....	1	0.5	...	.....	...	.....	146	75	...	.....	...	.....	...	.....	19	9.7	13	17	15
White Oak	100	Burnett—Chicago	May, '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	64	64	...	.....	27	9	36
White Oak	101	Wellhouse—Chicago	May, '02	...	.....	...	.....	...	.....	...	.....	3	3	2	5	...	.....	...	.....	2	2	64	29	93
White Oak	107	Zinc-Creosoted—Beaumont	May, '02	45	42	36	75.7	26	100	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	...	.....
White Oak	100	Burnett—A. & L., Somerville	May, '02	...	.....	...	.....	...	.....	...	.....	17	17	1	18	82	100	...	.....	...	.....	...	...	.....
White Oak	100	Wellhouse—A. & L., Somerville	May, '02	...	.....	...	.....	...	.....	...	.....	...	.....	42	42	...	.....	...	.....	6	6	24	28	52
White Oak	100	Allardyce—A. & L., Somerville	May, '02	...	.....	...	.....	...	.....	...	.....	...	.....	1	1	1	2	69	71	...	.....	22	7	29
White Oak	196	Barschall—A. & L., Somerville	May, '02	...	.....	...	.....	2	1	22	12.2	140	83.7	...	.....	...	.....	...	.....	2	1	18	12	15
Red Oak	93	Untreated	Mch., '02	...	.....	5	5.4	77	88.2	...	.....	...	.....	5	93.5	...	.....	6	100	...	.....	...	...	.....
Red Oak	86	Burnett—Chicago	Mch., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	3	3.5	21	28	9	10	21	32	61.6
Red Oak	20	Burnett—A. & L., Somerville	Mch., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	20	100	...	.....	...	.....	...	...	.....
Red Oak	20	Wellhouse—A. & L., Somerville	Mch., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	20	100	...	.....	...	.....	...	...	.....
Red Oak	10	Allardyce—A. & L., Somerville	Mch., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	6	4	100
Red Oak	19	Barschall—A. & L., Somerville	Mch., '02	...	.....	...	.....	15	78.9	2	89.5	...	.....	2	100	...	.....	...	.....	...	.....	...	...	.....
Black Oak	24	Untreated	May, '02	...	.....	...	.....	3	12.5	19	91.7	2	100	...	.....	...	.....	...	.....	...	.....	...	...	.....
Black Oak	86	Wellhouse—Chicago	May, '02	...	.....	...	.....	...	.....	...	.....	12	14	2	16.3	...	.....	10	28	48	56	6	8	16
Black Oak	76	Zinc-Creosoted—Beaumont	May, '02	36	47.4	40	100	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	...	.....
Black Oak	34	Burnett—A. & L., Somerville	May, '02	...	.....	...	.....	...	.....	...	.....	5	14.7	...	.....	...	.....	29	100	...	.....	...	...	.....
Black Oak	33	Wellhouse—A. & L., Somerville	May, '02	...	.....	...	.....	...	.....	...	.....	2	6	16	54.5	...	.....	11	88	4	12	...	...	.....
Black Oak	60	Allardyce—A. & L., Somerville	May, '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	46	77	...	.....	14	...	23
Black Oak	118	Barschall—A. & L., Somerville	May, '02	...	.....	...	.....	104	88.1	4	91.5	3	94.1	7	100	...	.....	...	.....	...	.....	...	...	.....
Turkey Oak	20	Untreated	Apr., '02	...	.....	...	.....	...	.....	18	90	...	.....	...	.....	2	100	...	.....	...	.....	...	...	.....
Turkey Oak	10	Zinc-Creosoted—Beaumont	Apr., '02	...	.....	...	.....	10	100	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	...	.....
Turkey Oak	19	Burnett—A. & L., Somerville	Apr., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	19	100	...	.....	...	.....	...	...	.....
Turkey Oak	20	Wellhouse—A. & L., Somerville	Apr., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	18	90	...	.....	...	.....	...	2	10
Turkey Oak	10	Allardyce—A. & L., Somerville	Apr., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	1	10	7	2	90
Turkey Oak	19	Barschall—A. & L., Somerville	Apr., '02	...	.....	...	.....	18	94.7	1	100	...	.....	...	.....	...	.....	...	.....	...	.....	...	...	.....
Spanish Oak	20	Untreated	May, '02	...	.....	...	.....	4	20	...	.....	16	100	...	.....	...	.....	...	.....	...	.....	...	...	.....
Spanish Oak	10	Zinc-Creosoted—Beaumont	May, '02	...	.....	...	.....	8	80	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	2	...	20
Spanish Oak	21	Burnett—A. & L., Somerville	May, '02	...	.....	...	.....	...	.....	...	.....	5	23.8	...	.....	...	.....	4	43	12	57	...	...	.....
Spanish Oak	20	Wellhouse—A. & L., Somerville	May, '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	9	45	4	20	5	2	35
Spanish Oak	10	Allardyce—A. & L., Somerville	May, '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	5	50	...	.....	5	...	50
Spanish Oak	20	Barschall—A. & L., Somerville	May, '02	...	.....	...	.....	1	5	8	45	11	100	...	.....	...	.....	...	.....	...	.....	...	...	.....
Willow Oak	20	Untreated	May, '02	...	.....	...	.....	15	75	5	100	...	.....	...	.....	...	.....	...	.....	...	.....	...	...	.....
Willow Oak	11	Zinc-Creosoted—Beaumont	May, '02	...	.....	...	.....	11	100	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	...	.....
Willow Oak	20	Burnett—A. & L., Somerville	May, '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	20	100	...	.....	...	.....	...	...	.....
Willow Oak	20	Wellhouse—A. & L., Somerville	May, '02	...	.....	...	.....	...	.....	...	.....	...	.....	8	40	...	.....	12	100	...	.....	...	...	.....
Willow Oak	10	Allardyce—A. & L., Somerville	May, '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	10	100	...	.....	...	...	.....
Willow Oak	20	Barschall—A. & L., Somerville	May, '02	...	.....	...	.....	17	85	3	100	...	.....	...	.....	...	.....	...	.....	...	.....	...	...	.....
Beech	100	Untreated	Feb., '02	...	.....	...	.....	97	97	3	100	...	.....	...	.....	...	.....	...	.....	...	.....	...	...	.....
Beech	50	Zinc-Creosoted—Beaumont	Feb., '02	...	.....	...	.....	...	.....	...	.....	50	100	...	.....	...	.....	...	.....	...	.....	...	...	.....
Beech	99	Burnett—A. & L., Chicago	Feb., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	75	76	...	.....	14	10	24
Beech	100	Wellhouse—A. & L., Chicago	Feb., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	30	30	44	26	70
Beech	50	Allardyce—A. & L., Somerville	Feb., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	40	80	...	.....	10	...	20
Beech	98	Barschall—A. & L., Somerville	Feb., '02	...	.....	2	2	96	100	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	...	.....
Hemlock	101	Untreated	Apr., '02	...	.....	101	100	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	...	.....
Hemlock	49	Zinc-Creosoted—Beaumont	Apr., '02	...	.....	...	.....	...	.....	38	77.6	...	.....	4	85.7	...	.....	1	88	...	.....	5	1	12
Hemlock	100	Burnett—Chicago	Apr., '02	...	.....	...	.....	...	.....	...	.....	...	.....	30	30	...	.....	...	.....	35	35	18	17	35
Hemlock	100	Wellhouse—Chicago	Apr., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	4	4	17	21	...	.....	...	...	.....
Hemlock	50	Allardyce—A. & L., Somerville	Apr., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	50	100	...	.....	...	...	.....
Hemlock	100	Barschall—A. & L., Somerville	Apr., '02	...	.....	...	.....	87	87	7	94	...	.....	6	100	...	.....	...	.....	...	.....	...	...	.....
Tamarack	49	Untreated	May, '02	...	.....	...	.....	49	100	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	...	.....
Tamarack	51	Zinc-Creosoted—Beaumont	May, '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	46	90.2	...	.....	...	.....	5	...	10
Tamarack	49	Burnett—Chicago	May, '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	49	100	...	...	.....
Tamarack	100	Wellhouse—Chicago	May, '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	100	100	...	...	.....
Tamarack	50	Allardyce—A. & L., Somerville	May, '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	50	100	...	.....	...	...	.....
Tamarack	98	Barschall—A. & L., Somerville	May, '02	...	.....	...	.....	78	79.6	...	.....	11	90.8	...	.....	...	.....	9	100	...	.....	...	...	.....
Shortleaf Pine	100	Untreated	May, '02	...	.....	35	35	20	55	44	99	...	.....	...	.....	...	.....	1	100	...	.....	...	...	.....
Shortleaf Pine	50	Zinc-Creosoted—Beaumont	May, '02	...	.....	...	.....	...	.....	...	.....	...	.....	43	86	...	.....	...	.....	...	.....	3	4	14
Shortleaf Pine	100	Burnett—A. & L., Somerville	May, '02	...	.....	...	.....	...	.....	...	.....	...	.....	61	61	...	.....	1	62	5	5	22	11	33
Shortleaf Pine	100	Wellhouse—A. & L., Somerville	May, '02	...	.....	...	.....	...	.....	...	.....	...	.....	79	79	...	.....	...	.....	1	1	10	10	20
Shortleaf Pine	50	Allardyce—A. & L., Somerville	May, '02	...	.....	...	.....	...	.....	...	.....	...	.....	21	42	1	44	...	.....	20	40	7	1	16
Shortleaf Pine	98	Barschall—A. & L., Somerville	May, '02	...	.....	...	.....	...	.....	74	75.5	...	.....	23	99	...	.....	...	.....	...	.....	...	1	1
Redheart Pine	100	Barschall—A. & L., Somerville	May, '02	...	.....	...	.....	25	25	49	74	3	77	23	100	...	.....	...	.....	...	.....	...	...	.....

RECORD OF LIFE OF TIES IN EXPERIMENTAL TRACK ON THE BEAUMONT DIVISION OF THE GULF, COLORADO & SANTA FE RAILWAY IN TEXAS—(*Continued*).

Kind of Wood.	No. of Ties.	Kind of Treatment.	Year Ins'd.	Nov., 1903. No.	Nov., 1903. %	June, 1904. No.	June, 1904. %	Nov., 1905. No.	Nov., 1905. %	Dec., 1906. No.	Dec., 1906. %	Feb., 1908. No.	Feb., 1908. %	Nov., 1908. No.	Nov., 1908. %	Sept., 1909. No.	Sept., 1909. %	Feb., 1911. No.	Feb., 1911. %	June, 1912. No.	June, 1912. %	Ties still in track. Number. Good.	Decay.	%
Longleaf Pine	93	Untreated	Apr., '02	...	.....	...	.....	85	91.4	...	.....	...	.....	1	92.5	...	.....	7	100	...	.....	...	...	.....
Longleaf Pine	50	Zinc-Creosoted—Beaumont	Apr., '02	...	.....	...	.....	...	.....	...	.....	19	38	1	40	...	.....	...	.....	4	8	17	9	52
Longleaf Pine	100	Burnett—A. & L., Somerville	Apr., '02	...	.....	...	.....	...	.....	...	.....	27	27	...	.....	...	.....	...	.....	6	6	50	17	67
Longleaf Pine	100	Wellhouse—A. & L., Somerville	Apr., '02	...	.....	...	.....	...	.....	...	.....	3	5	52	55	...	.....	...	.....	...	.....	26	19	45
Longleaf Pine	100	Barschall—A. & L., Somerville	Apr., '02	...	.....	...	.....	...	.....	...	.....	95	95	...	.....	...	.....	...	.....	...	.....	3	2	5
Longleaf Pine	50	Allardyce—A. & L., Somerville	Apr., '02	...	.....	...	.....	...	.....	...	.....	7	14	...	.....	...	.....	...	.....	9	18	31	3	68
Longleaf Pine	100	Beaumont Oil—Somerville	Apr., '02	...	.....	...	.....	...	.....	70	70	...	.....	...	.....	...	.....	30	100	...	.....	...	...	.....
Longleaf Pine	100	Beaumont Oil-Zinc Chlo	Apr., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	8	8	...	.....	56	36	92
Longleaf Pine	100	Spirittine—A. & L., Somerville	Apr., '02	...	.....	...	.....	...	.....	8	8	72	80	...	.....	...	.....	5	85	...	.....	9	6	15
Loblolly Pine	100	Untreated	Apr., '02	...	.....	100	100	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	...	.....
Loblolly Pine.....(a)	49	Zinc-Creosoted—Beaumont	Apr., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	49	100	...	.....	...	...	.....
Loblolly Pine.....(d)	99	Burnett—A. & L., Somerville	Apr., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	99	100	...	.....	...	...	.....
Loblolly Pine.....(c)	99	Wellhouse—A. & L., Somerville	Apr., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	94	95	...	.....	...	5	5
Loblolly Pine.....(b)	49	Allardyce—A. & L., Somerville	Apr., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	49	100	...	.....	...	...	.....
Loblolly Pine	99	Barschall—A. & L., Somerville	Apr., '02	...	.....	...	.....	18	18.2	81	100	...	.....	...	.....	...	.....	...	.....	...	.....	...	...	.....
Loblolly Pine	42	Beaumont Oil—Somerville	Apr., '02	...	.....	...	.....	40	95.2	...	.....	...	.....	...	.....	...	.....	2	100	...	.....	...	...	.....
Loblolly Pine	80	Beaumont Oil-Zinc Chlo	Apr., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	80	100	...	.....	...	...	.....
Loblolly Pine	100	Spirittine—A. & L., Somerville	Apr., '02	...	.....	...	.....	80	80	18	98	...	.....	...	.....	...	.....	2	100	...	.....	...	...	.....
Pines	84	Avenarius Carbolineum	Apr., '05	...	.....	...	.....	...	.....	1	1.2	76	91.7	...	.....	...	.....	...	.....	...	.....	...	...	.....

REMARKS—Longleaf and Loblolly soaked with Beaumont Oil absorbed 3 lbs. per cubic foot.
(a) Original quantity, 50; one out for test. (b) Original quantity, 50; one out for test. (c) Original quantity, 100; one out for test. (d) Original quantity, 100; one out for test.
Zinc-Creosoted ties, Beaumont oversteamed;
Mr. Chanute's ties treated—Chicago; Ayer & Lord, Somerville; International Creo. Co., Beaumont;
Hassellman or Barschall, by Ayer & Lord Co., Somerville.

RECORD OF LIFE OF TOPEKA TIES IN EXPERIMENTAL TRACK ON BEAUMONT DIVISION OF THE GULF, COLORADO & SANTA FE RAILWAY IN TEXAS.

Kind of Wood.	No. of Ties.	Kind of Treatment.	Year Ins'd.	June, 1904. No.	June, 1904. %	Nov., 1905. No.	Nov., 1905. %	Dec., 1906. No.	Dec., 1906. %	Feb., 1908. No.	Feb., 1908. %	Nov., 1908. No.	Nov., 1908. %	Sept., 1909. No.	Sept., 1909. %	Feb., 1911. No.	Feb., 1911. %	June, 1912. No.	June, 1912. %	Ties still in track. Number. Good.	Decay.	%
Pines	19	Diamond Glue Private	Feb., '02	...	.....	17	89.5	...	.....	2	100	...	.....	...	.....	...	.....	...	.....	...	...	.....
Pines	74	Barschall	Feb., '02	...	.....	33	44.6	37	94.6	...	.....	...	.....	1	95.9	1	1.3	...	.....	2	...	2.7
California Redwood	8	Burnett	Feb., '02	...	.....	8	100	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	...	.....
California Redwood	2	Burnett-Cal. Crude Oil	Feb., '02	...	.....	2	100	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	...	.....
Longleaf Pine	4	Burnett	Feb., '02	...	.....	...	.....	2	50	1	75	...	.....	...	.....	...	.....	...	.....	1	...	25
Shortleaf Pine	3	Burnett	Feb., '02	...	.....	...	.....	2	67	...	.....	...	.....	...	.....	...	.....	...	.....	1	...	33
New Mexico Pine	10	Burnett	Feb., '02	...	.....	...	.....	2	20	...	.....	...	.....	...	.....	...	.....	5	50	3	...	30
Arizona Pine	4	Burnett	Feb., '02	...	.....	...	.....	1	25	...	.....	...	.....	...	.....	...	.....	...	.....	3	...	75
Gum	3	Burnett	Feb., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	1	33	...	.....	2	...	67
Water Oak	2	Burnett	Feb., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	2	...	100
Pin Oak	2	Burnett	Feb., '02	...	.....	...	.....	...	.....	1	50	...	.....	...	.....	...	.....	...	.....	1	...	50
Red Oak	2	Burnett	Feb., '02	...	.....	...	.....	1	50	...	.....	...	.....	...	.....	...	.....	...	.....	1	...	50
Longleaf Pine	6	Boiled in Zinc-Chlo	Feb., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	1	17	5	...	83
Shortleaf Pine	4	Boiled in Zinc-Chlo	Feb., '02	...	.....	...	.....	...	.....	1	25	...	.....	...	.....	...	.....	...	.....	3	...	75
Arizona Pine	2	Boiled in Zinc-Chlo	Feb., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	2	...	100
Gum	1	Boiled in Zinc-Chlo	Feb., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	1	...	100
Red Oak	3	Boiled in Zinc-Chlo	Feb., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	...	.....
Pin Oak	3	Boiled in Zinc-Chlo	Feb., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	...	.....
Water Oak	1	Boiled in Zinc-Chlo	Feb., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	...	.....
Shortleaf Pine	3	Bakersfield Oil	Feb., '02	...	.....	...	.....	1	25	...	.....	...	.....	...	.....	...	.....	...	.....	3	...	75
Loblolly Pine	4	Bakersfield Oil	Feb., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	4	...	100
Arizona Pine	2	Bakersfield Oil	Feb., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	1	...	50
New Mexico Pine	1	Bakersfield Oil	Feb., '02	...	.....	...	.....	2	66	...	.....	...	.....	...	.....	...	.....	...	.....	1	...	33
Gum	1	Bakersfield Oil	Feb., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	1	...	100
New Mexico Pine	2	Boiled in Zinc-Chlo.; Cal. Oil forced in	Feb., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	2	...	100
New Mexico Pine	7	Burnett-Cal. Oil	Feb., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	7	...	100
Loblolly Pine	1	Burnett-Cal. Oil	Feb., '02	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	...	.....	1	...	100

*The three Bakersfield Crude Oil ties were removed in 1906 for inspection and were in a perfect state of preservation.

FRISCO FREIGHT LOSS AND DAMAGE BUREAU.

Transportation Department's Investigation and Handling of Claims, Refused and Unclaimed Shipments and Tracers.

Proceeding on the theory that the transportation department is the proper department to handle freight loss and damage claims, the management of the St. Louis & San Francisco on September 15, 1911, transferred the handling of such claims from the traffic to the operating department, placing it under the jurisdiction of E. D. Levy, assistant general manager, who organized a new department with J. H. Doggrell as superintendent, and G. E. Whitelam, as assistant superintendent of freight loss and damage claims.

The first move made by the Frisco toward adopting this policy was on January 1, 1909, when the work of investigating loss and damage claims, determining liability, ascertaining causes and applying remedial measures, was transferred from the traffic department to the office of Mr. Levy, who was then superintendent of transportation. On the same date a plan was put into effect to investigate over, short and damage reports, details of which were worked out by Mr. Levy. The system devised and the results obtained were described in the *Railway Age Gazette* of November 12, 1909. Since the inauguration of the OS&D department many improvements in the matching of overs against shorts and *vice versa*, the locating of bad situations and correcting them, the stowing of freight, etc., have been worked out.

On March 15, 1911, the handling of refused and unclaimed freight, both carload and less than carload, was transferred from the traffic department to Mr. Levy's office. The system adopted in handling this freight is different, it is believed, from that in use on any other railway.

On August 1, 1911, the Frisco adopted the plan of authorizing its station agents to pay claims for visible damage only, to both carload and less than carload freight with certain exceptions, and within the limit of $50, and later increased the authority of a number of its agents to adjust claims for shortages and concealed loss and damage.

To the new freight loss and damage department put in operation September 15, 1911, was assigned the work of (1) investigating and adjusting all loss and damage claims; (2) investigating over, short and damage reports; (3) handling for disposition all refused and unclaimed freight; (4) tracing all less than carload shipments.

An article briefly describing the new organization was published in the *Railway Age Gazette*, September 8, 1911, page 486.

The prime objects of the Frisco plan may be roughly stated as follows: (1) to investigate promptly and thoroughly over, short and damage reports with the object of having investigation completed before claims are filed; (2) to investigate thoroughly each claim filed, so as to locate the cause of it, properly fix responsibility and apply discipline; (3) by the thorough investigation of claims and OS&Ds from a transportation standpoint, to bring about a reduction in the number of claims filed by correcting bad transportation; (4) to make friends for the Frisco by giving first class service in handling refused and unclaimed freight and L. C. L. tracers; (5) by disposing of claims promptly and equitably, to satisfy patrons and attract business to the road and reduce unfriendly public sentiment, which has been partly caused by past methods of handling claims.

One of the greatest evils that have crept into the handling of claims on large systems is the delay in making final adjustment and which can be reduced to a minimum if proper methods and systems were devised. The chief causes of delay might be summed up as follows: (1) lack of adequate system to trace agents and others for information requested, when not furnished at once and for following up each failure to reply to communications promptly for disciplinary action; (2) lack of appreciation on the part of employees in general of what it means to the management to pay claims promptly; (3) lack of suitable systems for filing claims and handling the large volume of mail received daily about them, as well as lack of a system to prevent lost motion in handling claims through the office.

The success that has attended the Frisco plan in bringing about the prompt payment of claims is largely attributed to the fact that by making vigorous efforts to have OS&D reports investigated before claims are filed, they have been successful in having completed files in the office to cover 85 per cent. of the claims on L C L freight before they were received. In a majority of cases all there was to do after receipt of the claim was to attach the OS&D file to the claim and make settlement.

HANDLING CLAIMS WITHIN THIRTY DAYS.

A short time after the department was organized, it was decided to put forth every effort to dispose of all claims within a period of 30 days, with the exception of unusual claims and those requiring an unusual amount of investigation, and when claims were not adjusted within 30 days to, at the end of this period and every 30 days thereafter as long as the claim remained unadjusted, send the claimant a letter, telling him the cause of the delay and the exact status of his claim. A circular announcing this plan was issued on November 1, 1911. Since it has been in operation the results obtained in the way of reducing tracers and satisfying patrons has been beyond expectations. While, of course, a good many claims are not settled within 30 days, a great many are settled in less time than that, and over 30 per cent. of the claims filed are paid on the same day that they are received. This naturally pleases patrons and restrains them from complaining when unfavorable delays occur.

The circular announcing the adoption of this plan called forth a large number of letters from shippers who expressed hearty endorsement of it. One wrote:

"If all the railways would take the stand that you have in this letter; namely, to promptly investigate all claims and pay them within thirty days from date of filing if they are just, practically all hard feelings between shippers and railway companies would be eliminated. Since the writer has been in business this is the first communication from any railway he had ever seen showing a disposition on the part of the railway company to meet the shipper half way in the settlement of claims. If your company lives up to what it advocates in this letter your business deserves to increase."

A great many delays in adjusting claims with which the railways are charged are due to the failure of shippers to present their claims properly supported. Mr. Doggrell has therefore sent out letters to patrons telling them that claims must always be accompanied by the original bill of lading or shipping receipt, paid freight bill, bill against the Frisco and original invoice or attested copy. The Frisco has also widely circulated three publications promulgated by the Freight Claim Association entitled, "How to Prevent Claims," "How to Present Claims," and "How to Collect Claims." This educational work has helped materially in furthering the work of the claim bureau.

HANDLING OF CLAIMS BY AGENTS.

As already stated, agents are authorized to pay claims for visible damages, shortages and concealed losses and damages to freight for amounts from $10 to $50. The authority granted to agents is indicated by the following:

Number agents authorized to pay claims for shortages, visible damages, concealed losses and damages, 77.

Number agents authorized to pay claims for shortages and visible damages, 54.

Number agents authorized to pay claims for visible damages only, 462.

Total, 593.

There are 650 open stations—stations without agents—on the Frisco, therefore, there are only 67 stations that have not been granted any authority to settle claims, which is due to the stations not having sufficient business or being only ticket stations.

Agents are not allowed to pay claims for damage to perishable freight, loss of grain or coal from carload or less than carload shipments, damage to live stock, or damage to sewer pipe, drain pipe and kindred articles. Before paying claims the agent is required to satisfy himself of the invoice price of the article, and also to satisfy himself that proper credit is given for the salvage, or that the salvage is turned over to the road. When a claim is paid by an agent, the claim papers must be prepared in the usual way and supported by the usual documents. After this is done the agent is required to fill out Frisco form 75-A local in quadruplicate, sending the original and two copies to Mr. Doggrell, and retaining the fourth copy as an office memorandum of the amount of money paid out. The agent must personally certify to the correctness of the information shown on the form and he or a bonded employee must witness the signature of the claimant on each copy.

On receipt of the claim papers with the three copies of form 75-A local, the superintendent of freight, loss and damage claims approves the second, or duplicate copy, and sends it back to the agent by return mail, and when this is received it represents in the agent's account the amount of money shown on the form as paid out by him, and he attaches this form to his monthly statement of special credits. This monthly statement of special credits, form 75-A local, is made at the end of each month, and includes all claims paid during the month, being supported by duplicate copy of form 75-A approved by the superintendent of freight, loss and damage claims.

The agents are not only authorized to make settlements as indicated, but are required to do so, and the loss and damage bureau constantly checks them up to see that they act both fairly and promptly. The Frisco's theory is that it wants men who can pay claims and not men who can delay or prevent payment. It considers that prompt settlements are as good advertising as the road can get. If an agent, instead of complying with the instructions that have been issued, sends an unsettled claim to headquarters, his attention is promptly called to the instructions he has been given, and he is asked why he did not make settlement. On the other hand, of course, if his reports indicate an unwise settlement in disregard of his instructions, this also is promptly brought to his attention. If he makes an unusually good settlement he is commended for it.

The chief objects in increasing the authority of the local agents for the settlement of claims were to put the small shippers at local points on a parity with the larger shippers from a claim settlement standpoint, and to enable agents to increase their prestige among their patrons. Another object was to enable them to adjust household goods claims at the time shipments were received. A large number of suits were filed covering household goods claims before this plan was adopted; since its adoption there has been a material decrease in them. The large shippers can afford to have, and do have, well organized traffic departments that follow up claims systematically, and because of the relative success they have in securing prompt settlements, the retail merchant often has his claim handled by the house from which he buys his goods. The knowledge that a larger shipper can secure a quicker settlement than a small shipper, convinces the small shipper that he is discriminated against.

Again, in many cases, the agent can handle claims for visible shortage or damage, not only with more promptness than some clerk in a distant office, but also with more justice to the shipper and to the better protection of the railway. Being on the ground when the shipment arrives or is opened up, he can tell whether and to what extent there has been loss or damage. This enables him to better tell the railway what settlement ought to be made, and also to prevent the shipper from making a claim for more than ought to be paid. The increased prestige that authority to make settlements gives and the friendships gained by making them also tend to make the agent a more efficient representative of his road in the community.

Mr. Doggrell has sent a number of circulars to the division superintendents and to the agents, who report to the superintendents, calling their attention to the number of claims filed, to the promptness with which claims are settled and to the amounts involved, and urging them to extend their close co-operation to reduce the causes of claims, and at the same time expedite their handling. For example, on December 3, 1911, a circular was mailed to all agents, calling attention to the fact that the Frisco pays out approximately $500,000 per year for loss of and damage to freight; that it receives approximately 50,000 loss and damage claims per year; and that, therefore, the average amount paid out per claim is about $10. There are about 650 open stations on the Frisco, and, therefore, as pointed out, if each agent should be the means of preventing one claim per month this would involve a decrease of 650 claims, or $6,500 per month, or about $75,000 per year. Copies were sent to superintendents with the suggestion that it would be well to supply the information that the circular contained to the yard forces and train and engine crews, and that they be urged to give their earnest co-operation to prevent increase in freight claim payments in the fiscal year 1912. Mr. Doggrell added that it was hoped to make a decrease of $100,000 in the claim payments during the year, and that he was satisfied that this could be accomplished if all employees would lend their closest co-operation.

About a month later another circular was sent to the superintendents, giving the number of claims filed during the calendar years 1908, 1909, 1910, 1911, also the claim payments during those years and the decreases and percentage of decreases. The following information in this circular and Mr. Doggrell's comments are of interest.

CLAIMS FILED.

Calendar year 1908	67,295
Calendar year 1909	59,613
Calendar year 1910	56,588
Calendar year 1911	54,745

Decrease 1909 under 1908..... 7,682 claims or 11.4 per cent.
Decrease 1910 under 1908.....10,707 claims or 15.9 per cent.
Decrease 1911 under 1908.....12,550 claims or 18.6 per cent.

CLAIM PAYMENTS.

Calendar year 1908	$642,753.04
Calendar year 1909	541,865.00
Calendar year 1910	491,496.02
Calendar year 1911	487,168.65

Decrease 1909 under 1908.....$100,888.04 or 15.7 per cent.
Decrease 1910 under 1908..... 151,257.02 or 23.5 per cent.
Decrease 1911 under 1908..... 155,584.39 or 24.2 per cent.

"You will note from these figures that the number of claims filed in 1908 was 67,295, and in 1911, 54,745, a decrease of 12,550 or 18.6 per cent.

"You will further note claim payments for 1908 were $672,753.04 and in 1911, $487,168.65, a decrease of $155,584.39 or 24.2 per cent. The reason why we compare with 1908 is because we took over the investigation of claims, OS&Ds, on January 1, 1909.

"The following statement shows the average amount per claim filed for the calendar years 1908, 1909, 1910, 1911:

Calendar year 1908	$9.55
Calendar year 1909	9.09
Calendar year 1910	8.68
Calendar year 1911	8.91

"I am also noting below the percentage of claims filed in October, November and December, 1911, for amounts $5.00 and less:

Per cent. claims filed Oct., 1911, for amounts $5 and less..56.3 per cent.
Per cent. claims filed Nov., 1911, for amounts $5 and less..55.0 per cent.
Per cent. claims filed Dec., 1911, for amounts $5 and less..54.3 per cent.

"From this statement you will note that in October 56 per cent. of the claims we received were for amounts of $5.00 and less, in November, 55 per cent., and in December, 54 per cent. Therefore, you will appreciate how important it is that extreme care be used in the handling of freight so as to prevent damage for the reason that most of the small claims are for trivial damages, which could have been avoided had shipments been given careful handling."

During the period referred to, freight earnings increased 17 per cent.

On March 4, a circular was mailed direct to all trainmen, enginemen, yardmen and others concerned, calling their attention to the progress made in reducing claim payments and asking

them to extend their earnest support in making further reductions in claim payments. Their attention was particularly called to the amount paid out on loss and damage claims caused by rough handling. Mr. Doggrell said:

"If each of you would, by more careful handling of freight and cars, save the company $3 per month in claim payments we could easily bring about more than the $100,000 reduction. The $3 per month is a small sum when considered individually and can easily be saved by the exercise of due care on your part.

"During the fiscal year ending June 30, 1911, we paid out $123,745.39 for damage to freight caused by rough handling, and in 1910 we paid out $105,386.40. These figures will give you some idea of the large amount of money the Frisco is spending each year, due to the rough handling of freight."

A number of circulars addressed to patrons have been issued by Mr. Doggrell, asking them to co-operate to bring about better conditions and to criticise and suggest betterments in the road's methods. A circular addressed to patrons, about the handling of refused and unclaimed freight was sent out the latter part of February and read in part as follows:

"We are not shippers, but shippers' servants, and, in order that we may 'See ourselves as others see us', we invite your criticisms and suggestions for the betterment of our method of doing things from your point of view. We are sure that the better the opinion created in the minds of our patrons will result in more satisfactory and pleasant business relations and to our mutual benefit. We shall feel very grateful to you for any criticisms or suggestions offered and shall reciprocate at every opportunity."

Shippers have responded in a substantial way, by extending their co-operation as well as offering valuable suggestions for betterments.

OFFICE ORGANIZATION OF BUREAU.

Every effort is made to keep up and to increase the efficiency of the claim bureau's office organization. Its employees are organized into various committees whose duty it is to investigate and suggest means for securing greater efficiency. The committee organization plan is predicated on the theory that by making each employee feel he is a factor, he will be caused to take greater interest and the entire force will be welded into one harmonious whole. There are six committees, as follows: (1) On office organization and efficiency; (2) On forms; (3) On transportation; (4) On OS&D and claim investigation; (5) On files and correspondence; (6) To pass on claims to be arbitrated.

The work of the committees is done outside of office hours and general meetings of the office employees are held from time to time in the evenings at which their reports are discussed. The reports of the committees are criticised by the office force as a whole and various systems outlined and decided to be as practicable are put into effect immediately.

Two things in particular have greatly increased the efficiency of the office force, viz., the installation of dictaphones and the adoption of a notation system. No investigator, either claim, OS&D, or DR, is permitted to fill in any forms by hand. Such work is done by typists, who receive small wages. Each agent at a large station, and each superintendent and other official with whom the office has a large correspondence is given a number. For instance, the agent at Kansas City, Mo., is No. 1. Each form as well as form letters and stereotyped notation, outside of the regular interrogation forms, is given a number. The investigator fills out a little ticket which is pinned to the claim, on which he shows a number for the address, a number for the form to be used, a number for the notation he wants to use. The typists transcribe these tickets to the form desired used. The system is very complete and by actual test has increased the efficiency of the investigators 40 per cent. over the old method of doing the work by hand.

Every morning a series of reports from each department is placed on Mr. Whitelam's desk, which show the performance of the office as well as the condition on that day. This makes it possible to exercise thorough supervision over the entire office from day to day. One of the positive rules is that every letter received by U. S. mail must be answered on the day of its receipt or on the next day. Of course, the correspondence is very heavy, and it is sometimes extremely difficult to comply with this rule, but no excuse for failure to comply is accepted.

Another effective system is the sending out with correspondence addressed to agents of what are termed "Reminders." Each reminder brings to the agent's attention some important instruction or imparts some information which is of interest. These reminders are mimeographed on paper 2 x 9. For example one of them reads: "Don't send any claims to this office to be paid, that could have been paid on form 75-A Local at the time it was filed. Increase your popularity among your patrons by paying claims promptly."

The office force of the freight loss and damage bureau is composed as follows:

GENERAL.

1	chief clerk	$150
1	general clerk	50
1	mail clerk	35
1	office boy	25
1	general file clerk	45
1	general file and tracer clerk	75
6		$380

CLAIM DEPARTMENT.

1	chief claim clerk	$125
1	traveling claim adjuster	125
2	claim investigators, $100 each	200
6	claim investigators, 95 each	570
4	claim investigators, 90 each	360
2	claim investigators, 85 each	170
1	claim checker	100
1	claim checker	90
1	indexer	40
1	record clerk	35
1	record clerk	25
1	voucher typist	40
1	file clerk	45
1	file clerk	35
1	file clerk	30
4	file clerks, $25 each	100
2	file clerks, $20 each	40
31		$2,235

OS&D DEPARTMENT.

1	chief clerk	$125
1	OS&D investigator	90
1	LCL tracer clerk	90
1	OS&D investigator	75
2	general clerks, $60	120
1	general clerk	50
1	indexer	45
1	indexer	35
1	file clerk	45
1	file clerk	40
1	file clerk	30
12		$745

REFUSED AND UNCLAIMED DEPARTMENT.

1	chief clerk	$110
1	investigator	90
1	clerk	55
1	file clerk	40
4		$295

NOTATION DEPARTMENT.

1	chief notation typist	$ 50
2	typists, $50 each	100
1	typist	35
1	typist	30
2	typists, $25 each	50
2	typists, $20 each	40
9		$305

DICTAPHONE OPERATORS.

1	dictaphone operator	$ 75
2	dictaphone operators, $65 each	130
5	dictaphone operators, $60 each	300
8		$505

RECAPITULATION.

	No. Employees.	Total Salaries.
General	6	$ 380
Claim department	31	2,235
OS&D department	12	745
DR department	4	295
Notation department	9	305
Dictaphone department	8	505
	70	$4,465

HANDLING OF REFUSED AND UNCLAIMED FREIGHT.

One of the duties of the freight loss and damage bureau is that of handling carload and less-than-carload refused and unclaimed shipments. Such shipments result from various causes. Sometimes they are due to misbilling, but usually they grow out of differences between the shipper and the consignee, the consignee claiming that he did not order the goods or that they are not what he ordered, or that delay on the part of the shipper in filling the order has made them unsalable. Very few refused shipments result from failures of transportation. Immediately after

the transfer of the handling of these shipments to the transportation department the traveling agents were instructed to check up every warehouse on the road and make a disposition report for every refused and unclaimed shipment. As a result, approximately 700 shipments were sold or otherwise disposed of. The agents were impressed with the importance of rendering disposition reports promptly, and each failure to do so is handled with their superintendent for disciplinary action. The agents render a monthly report, showing all refused and unclaimed freight on hand and, in addition, the traveling agents are required to check stations at frequent intervals to see that all freigth has been reported.

Reconsignment orders are handled on the same date they are received, and closely followed up to see that the reconsignment is properly accomplished. Formerly, it required several weeks to get action on reconsignment orders covering L. C. L. shipments, while at present it is accomplished with minimum delay. Regarding the Frisco's method of handling this class of freight, one large shipper wrote Mr. Doggrell as follows:

"Frequently it consumed from six to eighteen months to have a shipment returned, while under your new system the shipments are generally in our possession within ten or fifteen days after we give you the request to return them.

"I wish all of the western lines would inaugurate the same system as the Frisco, because if they would do this, it would obviate a lot of correspondence and keep our claims reduced to a minimum."

The method used for handling both carload and L. C. L. refused and unclaimed shipments is briefly as follows: All carload shipments are reported to the bureau's office at once by wire. The car number is recorded in a record book which is indexed from 00 to 99, and the file reference is noted opposite the car number. All carloads are indexed under an RX file number beginning at "1," which will run indefinitely. A wire or traingram correspondence is then carried on with all parties interested until the car is delivered or otherwise disposed of. All less than carload refused and unclaimed shipments are reported on regular DR form 1138. Refused shipments are reported at once, and unclaimed shipments are reported after shipments have been on hand for a period of 20 days, proper postal notices having been sent to the consignee that the shipment is on hand awaiting his instructions. All refused or unclaimed perishable freight, is immediately disposed of to the best advantage and special remittance made to the treasurer covering the proceeds of the sale. Agents notify shippers of unclaimed shipments whenever it is possible to do so.

When the disposition report is received it is given a symbol letter and number, and an acknowledgment of the receipt of the report on form 1138-A, is mailed to the agent showing file reference, so that if future correspondence is necessary he knows under what file reference the matter is being handled.

All reports are indexed and filed under the date of the billing on which the shipment moved. The following letters are used to designate the months of the year in which shipments are billed:

J—January	K—May	S—September
F—February	B—June	O—October
M—March	G—July	N—November
A—April	K—August	D—December

The letter "R" is used to indicate a refused or unclaimed report; for example, a shipment moving in June would be indexed RB, while a shipment moving in May would be indexed RK, and one in September indexed RS. After the report is symboled and numbered, it is indexed, the index card giving following information: File reference, agent's station, DR number and date, billing reference, consignee, final destination and commodity. Each report is indexed three ways, different colored carbon paper being used, the card for station reporting, being the original, consignee, red, and where the shipment is consigned to an inland town or held up at a junction point, the final destination being off the rails, the card is filed under foreign destination (green).

When a shipment is delivered or otherwise disposed of, the agent returns form 1138-A, on which he shows what disposition has been made. The file is then stamped closed and the information as to how the shipment has been disposed of, that is, delivered, dumped or sold, is shown on the station reporting index cards from which statistics are made showing the performance of the refused and unclaimed freight bureaus. At intervals of five or six months, all station reporting index cards are gone over and a statistical report is made showing just how many reports have been received, how many of the shipments involved have been delivered, sold or dumped, and how many claims have been received.

All reports are handled the same date they are received from the agents, and a form letter is immediately sent to the shipper giving him all the facts possible about the shipment in question. The report is then filed with a fifteen day call-up on it, and if at the end of fifteen days nothing has been heard from the shipper, the agent is communicated with to ascertain if the shipment is still on hand. If it is, a second request is made on the shipper to furnish disposition. A period of about 30 days elapses from the time the report is received by the bureau until the second notice is sent to the shipper. At the end of 20 days from the date of the second notice to the shipper, if the shipment is still on hand at destination and is of any importance, the matter is referred to the traffic department representative in whose territory the shipment is located with a request that he call on the shipper and try to get disposition.

If the shipment is one of minor importance, a third notice is sent to the shipper. It is very rarely that it is necessary to send the third notice, as the shippers as a rule reply to either the first or second communication. They do not always furnish disposition, but a correspondence is started, which finally results, as a general thing, in an adjustment to the satisfaction of all parties concerned.

As a general rule, the original files are not allowed to go out of the office; an open correspondence is carried on, which is far more satisfactory. Reports and correspondence are filed by months and in numerical order, and can be readily located when replies to letters are received.

To illustrate how a file could be located when a shipper does not quote file reference, suppose the John Doe Plow Company of St. Louis, writes in regard to its shipment of December 29, consigned to W. R. Jones, Cora, Mo., and requests advice as to whether the consignee has accepted it. The bureau would refer to the consignee or destination index cards for the month of December, and would find it had a file of correspondence under RD-33.

The following statement by months containing information taken from index cards as of November 1, 1911, shows the number of reports of refused or unclaimed less-than-car-load shipments received, the number of such shipments delivered, dumped and sold, the number regarding which claims were filed, and the number of reports of refused or unclaimed shipments, not yet acted on, and indicates the improvement that has been effected in the handling of unclaimed and refused freight:

Month.	Less Than Car Load Shipments Rec'd.	Less Than Car Load Shipments Del'd.	Less Than Car Load Shipments Sold.	Less Than Car Load Shipments Dumped.	Less Than Car Load Shipments Claims Filed.	Less Than Car Load Shipments Closed.	Less Than Car Load Shipments Open.
Prior to 1911..	2,349	1,473	703	63	57	2,296	53
Jan.-Feb.	1,910	1,549	218	29	29	1,826	84
March	1,808	1,522	162	19	17	1,720	88
April-May	2,737	2,243	230	39	32	2,544	193
June-July	2,635	2,043	190	22	30	2,285	350
Aug.-Sept.	2,943	1,951	62	24	13	2,050	893
Total	14,382	10,782	1,565	196	178	12,721	1,661

		Delivered.		Sold.		Dumped.		Claims.	
Period.	Closed.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
Prior to 1911	2,296	1,473	64.2	703	30.6	63	2.7	57	2.5
Jan.-Feb. ...	1,826	1,549	84.9	218	11.9	29	1.6	29	1.6
March	1,720	1,522	88.5	162	9.4	19	1.1	17	1.0
April-May ..	2,544	2,243	82.2	230	9.5	39	.8	32	1.5
June-July ...	2,285	2,043	89.4	190	8.3	22	1.0	30	1.3
Aug.-Sept. ..	2,050	1,951	95.1	62	3.1	24	1.1	13	.7
Total ...	12,721	10,782	84.8	1,565	12.3	196	1.5	178	1.4

It will be seen that the 14,382 reports received, 12,721, or 88.4

per cent. had been disposed of either by the delivery, the selling or the dumping of the freight. Of the 12,721 shipments disposed of 98.6 per cent. were either delivered, sold or dumped, and the number on which claims were received was but 178, or 1.4 per cent. Many of the shipments sold or dumped were thus disposed of on instructions from the shipper, who had abandoned the property and authorized the railway to dispose of it for the accrued freight and storage charges. Of the 178 claims received fully 50 per cent. did not have to be paid because it was shown that the handling of the shipment by the railway had been satisfactory, and therefore, it was not liable.

HANDLING TRACERS COVERING LESS-THAN-CARLOAD SHIPPERS.

In the spring of 1911, shippers were requested to file all their tracers covering less-than-carload shipments with the agents at points of origin if on Frisco rails, and the agents were instructed to send the tracers, together with a statement of the billing and also their loading and forwarding record, to the office of Mr. Levy, then superintendent of transportation. These tracers are now sent to the freight loss and damage claim bureau, which acknowledges receipt of them direct to the shipper, who files them and handles any further correspondence necessary in connection with the tracers direct with the shippers. This method is said to save from four to five days' delay, because a tracer covering a less-than-carload shipment cannot be handled until the way-bill reference as well as the loading and forwarding record has been secured. In consequence, when tracers are filed with agents the necessity of returning the tracers to the agent for the billing, loading and forwarding record is eliminated. All new tracers and all correspondence about tracers under investigation are handled the same date they are received. The Freight Loss and Damage Bureau checks each tracer against the short reports to ascertain if an investigation has been started, and in 35 per cent. of the cases it has files covering the tracers, enabling it to give shippers prompt and reliable information. The bureau also checks to see that tracers are forwarded promptly by agents, and any delays are investigated. That this system has worked very satisfactorily to shippers, is shown by numerous complimentary letters which they have written to the management of the Frisco.

It is rumored that the Buenos Aires Western and the Buenos Aires Great Southern railways, Argentina, will be amalgamated.

The Entre Rios railway, Argentina, has received a concession from the chamber of deputies for the extension of its branch line between Caseros and Villa Elisa to a point between Jubilee and San Salvador on the Villa Guay-Concordia line. These lines will have a 4-ft. 8½-in. gage.

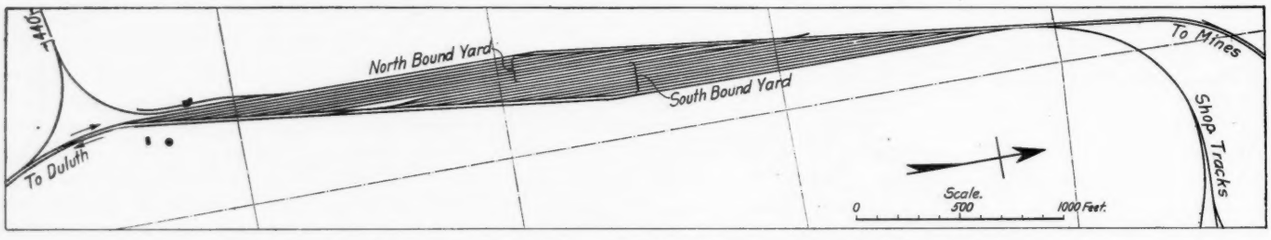
In the southern part of Bolivia only a section 100 miles long has to be constructed to connect Bolivia with the Central Northern Railway of Argentina. Construction work is steadily progressing on this section, which when completed will put southern Peru and Bolivia in direct rail communication with Buenos Aires and Montivedeo via Tucuman and Santa Fe.

A commission has been formed, composed of English, French and Russians, in equal numbers, to study the feasibility of the trans-Persian railway and to determine how and on what conditions it could be built. The English goverment has announced that its sanction would depend on the observance of conditions acceptable to it.

DULUTH, MISSABE & NORTHERN IMPROVEMENTS AT HIBBING, MINN.

The town of Hibbing, Minn., on the Missabe range is surrounded on three sides by iron ore mines which are worked as open pits. In the development and stripping of these mines during the past two years the topography has been so changed as to require extensive relocation of the Duluth, Missabe & Northern terminals in that vicinity. The four large mines grouped around the town are all connected, and the ore is brought out on a double-track line connecting all the pits and swinging around the east, north and west sides of the city for a distance of 3½ miles, rising to the surface at the west end and running approximately south. It is the general policy in operating such pits to provide a double-track approach over which is handled both the strippings and ore, but in this case separate approaches are provided, both of which are double-track. The added facilities are warranted, however, by the fact that in these mines there is now uncovered one of the largest bodies of iron ore in the world, and in case of an unusual demand it could be handled very rapidly.

The Duluth, Missabe & Northern, which is the steel corporation's road handling ore to Duluth from this vicinity, reaches Hibbing from the east and south. A portion of the east approach, over which is operated the company's passenger trains, had to be relocated into the city, and a new passenger station and general freight yard have been built on this relocated line. The south approach is known as the Hull Rust Short Line, a double-track cut-off completed about the first of 1911 to a connection with the company's Coleraine branch at Hull Junction to afford a shorter route to Duluth than was offered by the old line.



D. M. & N. Yard at Hibbing, Minn., for Handling Iron Ore Traffic at Mines.

A new ore classification yard has been provided on this new ore line just south of Hibbing. The six-wheel switching locomotives which handle the cars into and out of the mines pull the loads into the departure yard, which consists of eleven tracks, each about 1,900 ft. long. Dropping the train in this yard an engine runs out on to the ladder of the receiving yard and backs through any desired track of that yard, pushing ahead of it a string of empties down to the mine for loading. A road engine bringing empty ore cars from the dock pulls into the receiving yard, which consists of eight tracks, each about 1,900 ft. long, and dropping the train runs out on the ladder track, backs down to a turning wye, pulls out on to the main track and backs down into the departure yard to pick up a train of loaded cars. The loads are classified in this yard according to the grade of the ore and also to the company to which it is shipped. The corporation gets a majority of the ore out of these mines, but as there are some independent holdings the ore consigned to such companies is classified in separate trains in the departure yard.

A 200-ton McHenry coaling station, operated by a 15 h. p. gasolene engine, a 100,000 gal. steel water tank and 50 ft. tower, are provided at the yard for coaling and watering facilities. The water supply is secured from a well, in which a reinforced concrete shaft 45 ft. deep and 12 ft. in inside diameter was sunk. Four 4 in. well points were sunk 80 ft. below the bottom of this shaft and the bottom was concreted to prevent water rising in the well and drowning the pump. A brick and concrete pump house was built over the well.

This entire work was under the supervision of H. L. Dresser, chief engineer of the Duluth, Missabe & Northern.

THE STANLEY COMMITTEE'S RECOMMENDATIONS.

Text of the Amendments to the Sherman Law and Summary of Further Legislation Proposed in the Majority Report.

We print in full herewith the text of the three bills which the Stanley committee have prepared to be submitted with their report of their investigation of the United States Steel Corporation. The three bills are, first, an amendment to the Sherman anti-trust law defining restraint of trade, placing the burden of proof that no restraint exists on the corporation against which suit is brought, etc.; second, a new commodities clause bill prohibiting the carriage of a commodity in which a railway has an indirect interest through stock ownership, and lastly, a bill to prohibit interlocking directorates between equipment companies and railways. Since this text was made public it is said that there have been some further differences of opinion among the committee which might conceivably result in changes in their report.

In all, the Stanley committee will make five reports. First, a majority report giving findings of fact of the democratic majority. It is with this report that the three bills are to be presented. Second, a separate statement of the views of Representative Littleton, of New York, which attack the Stanley amendment to the Sherman law. Third, a minority report of the republican members of the committees, signed by Representatives Gardner, of Massachusetts, and Danforth, of New York, which, it is understood, will recommend the enactment of a federal incorporation law and a publicity clause, and some provision for government regulation of the maximum price of industrial products. Fourth, a minority report by Representative Young of Michigan, dissenting from the federal control of prices; and fifth, a minority report by Representative Sterling, of Illinois, also dissenting from government regulation of prices.

Representative Littleton's views, as quoted after the publication of the text of the majority report, are given in the General News Secion of this issue.

AMENDMENT TO THE SHERMAN LAW.

A bill to further protect trade and commerce against unlawful restraints and monopolies.

Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, that the act approved July 2, 1890, entitled "An act to protect trade and commerce against unlawful restraints and monopolies," is hereby amended by adding thereto the following:

Section 9—In the following section the context otherwise requires:

(a) The word "suit" means a civil suit or proceeding brought under or involving the provisions of this act.

(b) The word "combination" includes any contract or combination in the form of trust or otherwise.

(c) The words "restraint of trade" mean any restraint in any respect or to any extent of trade or commerce among the several states or with foreign nations.

(d) The word "vendor" includes lessor, licensor, or bailor.

(e) The word "vendee" includes lessee, licensee, or bailee.

(f) The word "purchase" (noun) includes lease, license, or bailment.

(g) The word "purchase" (verb) includes lease, license, or otherwise obtain.

(h) The word "purchasing" includes leasing, licensing, or obtaining.

(i) The word "sell" includes lease, license, bail, or furnish.

(j) The word "sold" includes leased, licensed, bailed, or otherwise dealt in or furnished, or supplied.

(k) The word "sale" includes lease, license, or bailment.

(l) The word "price" includes rental, royalty, or other means of compensation.

(m) The word "person" shall be deemed to include "persons."

Section 10—Any person who shall be injured in his business or property, or shall be threatened with such injury, by any other person or corporation by reason of anything forbidden or declared to be unlawful by this action may bring suit in equity in any Circuit Court of the United States in the district in which the defendant resides to prevent and restrain violations of this act and for other appropriate relief.

Section 11—Whenever suit has been instituted under Section 4 of this act for any person who shall be injured in his business or property or threatend with such injury by the defendants in said suit or any of them by reason of anything forbidden or declared to be unlawful in this act, and any state of the United States, may at any time intervene in said suit to protect his interests, or if the intervenor be a state, the interests of the citizens of such state, and any person interested and any state may after final decree in said suit petition said court for protection or redress in case of any violation of said decree, and the court shall have power to take such action or may be appropriate in the premises.

Section 12—Whenever in any suit it shall appear that any combination was entered into, existed, or exists, which was or is in restraint of trade, the burden of proof to establish the reasonableness of such restraint shall be upon the party who contends that such restraint is reasonable.

Section 13—Whenever in any suit it shall appear that any combination was entered into, existed, or exists, which was or is in restraint of trade, such restraint shall be conclusively deemed to have been and to be unreasonable and in violation of the provisions of this act as to any party thereto who is carrying on any business to which such combination relates or in connection therewith:

(A) If such person does business, directly or indirectly, under any name other than his own or that of the partnership of which he is a member; or any corporation does business under any name other than its own corporation name, or if there be any concealment or misrepresentation as to the ownership or control of such business, or if there be any misrepresentation as to the identity of the manufacturer, producer, or vendor of any article sold.

(B) As the vendor of any article, spies upon the business of any competitor, or secures information concerning his business, either through bribery of an agent or employee of such competitor, or of any state or federal official, or by any illegal means whatever secures information concerning the competitor's business.

In the course of such proceedings the court may grant orders of attachment, or may appoint a receiver, or may take such other proceedings conformable to the usual practices in equity as to insure the satisfaction of any claims so presented and the protection of the petitioner's rights.

Nothing done under this section shall be permitted to delay the final disposition of said principal proceeding in all other respects, and nothing contained in this section shall be taken to abridge the right of any person to bring an independent suit, as provided under Section 7 of this act; but if any person proceeds both by intervening petition and by independent suit, the court may order an election.

Section 17—An intervening petition under Section 7 of this act, or an original suit for the same cause under Section 7 of this act shall not be barred by lapse of time, if begun within one year after final judgment entered in a suit brought by or on behalf of the United States establishing such violation by the defendant or defendants of Section 1, Section 2, or Section 3:

Provided that the claim on which such intervening petition or original suit is founded is not already barred at the time of the passage of this act.

Section 18—Whenever, after the institution of proceedings

under Section 4 of this act, it shall appear to the court in preliminary hearing that there is reason to believe, or upon final hearing the court shall find that any combination was entered into, existed, or exists which was or is in restraint of trade, and that as a result thereof the defendants or any of them have the control of supplying the market with any machine, tool, or other article, whether raw material or manufactured, reasonably required in the manufacture or production of any other article, or for general consumption and use, and that no adequate opportunity exists to immediately obtain a substitute therefor of equal utility, the court shall immediately have power to make such order by injunction or otherwise, as it may deem necessary, as will secure to purchasers or users of such articles full opportunity to secure the same upon payment of a reasonable compensation, to be fixed by the court in such order, until some other adequate substitute can be provided:

Provided, however, that in so far as the time of application for such order, such machine, tool, or article is being supplied to any person under any contract, the amount of compensation therefor to be paid him under said order shall be that actually payable under terms of such contract, unless and until such contract is found or declared to be void, or expires.

Section 19—Whenever in any proceeding under Section 4 of this act any combination has been adjudged illegal under Section 1 and Section 2 of this act, the court before which such proceedings are pending shall have jurisdiction:

(a) To petition any property owned under contract or by a combination mentioned in Section 1 and Section 2 of this act in severalty among the owners thereof, or groups of owners thereof, and if the owners include one or more corporations, among the several stockholders thereof, or among groups of the several stockholders thereof all in proportion to their respective interests.

(b) If sales of such property are necessary or proper, either to pay debts or incumbrances thereon, or to re-create conditions in harmony with the law, to sell such property as a whole or in parcels; and the court may forbid the said owners, and if the said owners include one or more corporations, the stockholders thereof, from purchasing at such sales, and may prescribe the conditions on which any purchase may be made by any person whichever.

(c) To make such restraining orders or prohibitions as may be necessary and proper to re-create conditions in harmony with the law, including prohibitions of any acts, conduct, methods, or devices which are enumerated herein as indicating unreasonable restraint.

(d) To declare void, as against the defendants or any of them, any contract entered into as a part of the combination found to be in restraint of trade.

The relief granted in this section shall be in addition to and not inclusive of other relief permitted by this act, or otherwise by law.

(C) As the vendor of any article, attempts to restrain competition by supplying or offering to supply such article without charge, or at a price at or below cost of production and distribution.

(D) As the vendor of any article, with a view to preventing competition with the same, fixes upon some raw or manufactured material which he controls and which is required for producing a competitive article an unreasonably high price.

(E) As the vendor of any article attempts to prevent or restrain competition by any contract or arrangement under which he shall not sell any article in which he deals to certain persons or classes of persons, or to those doing business within certain districts or territories.

(F) As the vendor of any article, attempts to prevent or restrain competition by supplying or offering to supply to any person doing business in any particular territory articles sold by him upon terms or conditions in any respect more favorable than are accorded by him to his other customers.

(G) As the vendor of any article, attempts to prevent or restrain competition, either by refusing to supply to any other person requesting same any article sold, or by consenting to supply same only upon terms or on conditions in some respects less favorable than are accorded to any other person.

(H) As the vendor of any article, attempts to prevent or restrain competition by making in the price or other terms of any such sale any discrimination based upon whether the vendee purchases from him articles of a particular quantity or aggregate price.

(I) As the vendor of any article, attempts to prevent or restrain in any manner either directly or indirectly any vendee from purchasing such article or any other article from some other person, or using such article or any other article obtained from some other person, whether such attempt be made (first) by an agreement expressed or implied against such purchase, or (second) be made by a condition in the sale against such purchase, or (third) be made by imposing any restriction upon the use of the article so sold, or (fourth) be made by making in the price any discrimination based upon whether the vendess purchases any article made or sold by some other person, or (fifth) be made in any manner except the ordinary solicitation of trade.

(J) As the vendor of any article, attempts to prevent or restrain competition by the use of any unfair or oppressive methods of competition.

The foregoing enumerations of acts, conduct, methods, and devices which it is herein declared each shall conclusively be deemed unreasonable, shall not include, and shall not be construed to include, or as intended to exclude any other acts, conduct, methods, or devices which are or may be unreasonable.

The provisions of Clause I shall not apply to the mere appointment of sole agents to sell any article.

Section 14—Whenever in any suit it shall appear any combination was entered into, existed, or exists, which was or is in restraint of trade, there shall at once arise a rebuttable presumption that such restraint was or is unreasonable if, in the business in connection with said restraint existed or exists, the persons engaged in such combination controlled or controls or is a member of any corporation or association which controlled or controls, at the time such restraint is alleged to have existed or to exist, more than thirty percentum on the value of the total quantity sold in the United States, or more than thirty percentum in value of the total quantity sold in the part of the United States to which the business of such person, corporation, or association extends, of any article dealt in by such person, the trade in which is affected by such restraint.

Section 15—Whenever in any suit brought by or on behalf of the United States a final judgment or decree shall have been rendered to the effect that a defendant in violation of the provisions of this act has entered into a combination in restraint of trade, or has monopolized or attempted to monopolize, or has combined with any person to monopolize, any part of the trade or commerce among the several states or with foreign nations, the existence of such illegal combination or monopoly or of such attempt to monopolize, shall, to the full extent to which the issues of fact or law were litigated, and to the full extent to which such fact, judgment, or decree would constitute in any other proceeding an estoppel as between the United States and such defendant, constitute as against such defendant conclusive evidence of the same facts and be conclusive as to the same issues of law in favor of any other person in any other proceeding brought under or involving the provisions of this act.

Section 16—In any suit begun by or on behalf of the United States in which a judgment or decree interlocutory or final, has been entered that the defendants, or any of them, have been guilty of conduct prohibited by Section 1, Section 2, or Section 3 of this act, if it shall appear to the court by intervening petition of any other person, if such person claims to be injured

by such conduct, such person shall be admitted as a party to the suit to establish such injury, if any, and the damages resulting therefrom; and such person may have judgment and execution therefor or relief to the same extent as if an independent suit had been brought under Section 7 of this act.

COMMODITY CLAUSE BILL.

Section 1—That from and after the —— day of —— it shall be unlawful for any person, company, firm, or corporation engaged in mining or manufacturing of any kind or description, the product of which shall be transported in interstate or foreign commerce by common carrier subject to the provisions of the act to regulate commerce, approved February 4, 1887, as amended, to own, in whole or in part, directly or indirectly, by stock ownership or otherwise, any railway or other line of transportation, or the property of either, of any common carrier subject to the provisions of said act.

Section 2—That from and after the —— day of —— it shall be unlawful for any person, company, firm, or corporation, who, or which, owns, holds, or in any way controls a majority of the capital stock of any other corporation engaged in operating a line of transportation as a common carrier in the transportation of passengers or property wholly by railway ,or partly by railways and partly by water, when both are used under a common control, management, or arrangement for a continuous carriage (or shipment) from one state, territory, or district of the United States to another state, territory, or district of the United States, or from one place in a territory to another place in the same territory, or from any place in the United States to an adjacent foreign country, or from any place in the United States through a foreign country to any place in the United States, or engaged in like manner in the transportation of property shipped from any place in the United States to a foreign country and carried from such place to a port of transshipment or shipped from a foreign country to any place in the United States and carried to such place from a port of entry either in the United States or an adjacent foreign country, to operate, or in any manner or by any means participate in the operation, in whole or in part, of such line, or to ship over such line in intercommerce any article or commodity bought, sold, manufactured, mined, or produced by, or under the control of, or owned in whole or in part by, or in which any interest, direct or indirect, whether by stock ownership or otherwise, is held by any such person, company, or firm or corporation so owning a majority of capital stock.

Section 3—That the provisions of this act shall not be so construed as to apply to the transportation of passengers or property, or to the receiving, delivering, storage, or handling of property wholly within one state and not shipped to or from a foreign state to a state or territory as aforesaid.

Section 4—Any person, company, firm, or corporation violating any of the provisions of this act shall be deemed guilty of a misdemeanor, and for each offense, upon conviction, shall pay to the United States a penalty of not less than ——— dollars nor more than ——— dollars; and in case of a continuing violation each day of such violation shall be held to be a separate offense.

Section 5—Jurisdiction of offenses under this act shall be the same as that provided for offenses in an act entitled "an act to further regulate commerce with foreign nations and among the states," approved February 19, 1903, and any amendment thereof.

A BILL TO PROHIBIT INTERLOCKING DIRECTORITES BETWEEN EQUIPMENT COMPANIES AND RAILWAYS.

A bill to prohibit persons engaged in the manufacture and sale of railway cars, locomotives, railways, and structural steel, or in the mining or sale of coal, from becoming directors or other officers or employees of railways engaged in interstate commerce.

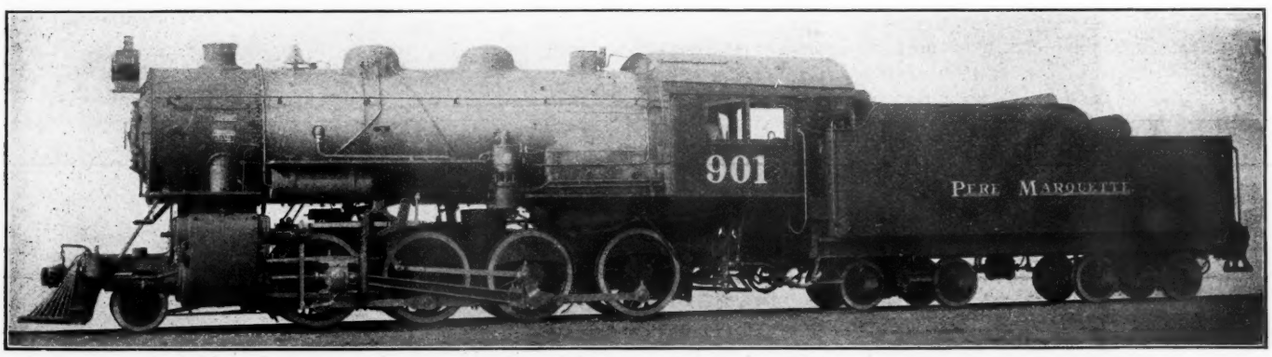
Be it enacted by the Senate and House of Representatives of the United States, in Congress assembled, that from and after June 30, 1913, no person who is engaged as an individual or as a member of a partnership or a director or other officer, or an employee of a corporation, in the business, in whole or in part, of manufacturing or selling railway cars or locomotives, or rails or structural steel, or mining and selling coal, shall act as a director or other officer or employee of any railway company which conducts an interstate commerce business.

Section 2—That any person who shall be guilty of a violation of this law shall be punished by a fine of $100 a day for every day during which he shall act as a director, officer, or employee of the railway company, or by imprisonment for such period as the court may designate, not exceeding one year, or by both a fine and imprisonment in the discretion of the court.

Accompanying these bills is a memorandum made by the committee explaining in detail the reasons for making these recommendations and explaining what is intended to be accomplished by each clause.

GOOD RESULTS FROM NEW LOCOMOTIVES.

A saving of 12 per cent. in fuel with a 50 per cent. increase in the average train load has resulted in freight service on the Pere Marquette with powerful consolidation locomotives of up-to-date design as compared with lighter locomotives of the same class of conventional design, operating in the same territory. Still greater fuel economy has been secured in passenger service by the introduction of moderate weight Pacific type locomotives using highly superheated steam. The superheater locomotives save an average of 22 per cent. in fuel, as compared with Pacific type locomotives using saturated steam, in the same service. In the months of February and March, when operating conditions were the worst, the new Pacific type locomotives saved 27 per cent. in fuel. Furthermore, while the consolidations here illustrated have 50 per cent. more hauling capacity than the railway's lighter class C-2 locomotives used in the same service, they weigh only 26½ per cent. more.



A Fuel Saving of 12 Per Cent. and an Increased Train Load of 50 Per Cent. Followed the Introduction of these 2-8-0 Locomotives on the Pere Marquette.

The new consolidations with their tenders weigh 382,400 lbs. The class C-2 consolidations weigh 302,300 lbs. These economies in operation are shown by service records covering a period of practically a year.

In June and July of last year, the Pere Marquette received 25 consolidation and 5 Pacific type locomotives from the American Locomotive Company. The two designs are illustrated herewith. They are equipped with superheaters of the fire-tube type and marked the introduction of the superheater on that road. In the construction of details each is generally representative of the builders' latest practice for locomotives of its particular type. Among the new features presented in the two designs, which have been widely introduced on recent locomotives, will be noticed the so-called outside steam pipes, self-centering design of valve stem crosshead guide, the self-centering guide for the piston rod extension and the outside bearing radial truck with floating spring seat yoke.

The Pacific type locomotives have 22 in. x 28 in. cylinders and a maximum tractive effort of 29,900 lbs. The sister engines using saturated steam have 22 in. x 26 in. cylinders and a maximum tractive effort of 27,800 lbs. The superheater locomotives weigh 220,000 lbs., while the saturated steam locomotives weigh 214,000 lbs.

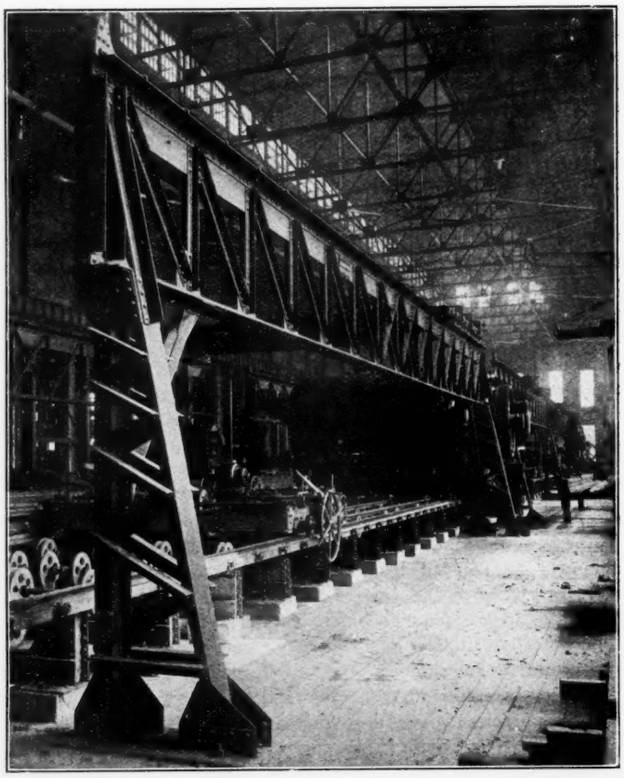
The consolidations are much more powerful than any previously used on the Pere Marquette and are among the most powerful locomotives of their type constructed by the builders. They carry a working pressure of 180 lbs. and have 25 in. x 30 in. cylinders. The maximum tractive effort is 50,300 lbs.

The use of a low steam pressure has considerably reduced the boiler work as compared with other locomotives on the road carrying 200 lbs. pressure. These new locomotives have been in service for 11 months and the master mechanic at Grand Rapids reports that so far no flues have had to be removed. Neither is there any indication that any such repairs will be necessary in the near future. With the locomotives using 200 lbs. pressure, part of the flues have to be removed after eight or nine months' service. The general dimensions and data for these locomotives are as follows:

	2-8-0 type.	4-6-2 type.
Gage	4 ft. 8½ in.	4 ft. 8½ in.
Maximum tractive effort	50,300 lbs.	29,000 lbs.
Weight on drivers	206,000 lbs.	142,500 lbs.
Weight on truck	23,000 lbs.	41,000 lbs.
Weight on trailers	.....	36,500 lbs.
Weight of engine (running order)	229,000 lbs.	220,000 lbs.
Weight of tender (running order)	153,400 lbs.	141,700 lbs.
Wheel base, driving	17 ft. 6 in.	13 ft. 4 in.
Wheel base, total engine	26 ft. 5 in.	33 ft. 10 in.
Wheel base, total engine and tender	60 ft. 5¾ in.	63 ft. 3¼ in.
Cylinders, diameter and stroke	25 in. x 30 in.	22 in. x 28 in.
Driving wheels, diameter	57 in.	77 in.
Boiler, type	Straight Top	Ext. Wagon Top
Boiler, outside diameter at front end	81⅝ in.	66⅜ in.
Boiler, working pressure per sq. in.	180 lbs.	200 lbs.
Firebox, length and width	108 in. x 75¼ in.	90 in. x 70¼ in.
Tubes, number and diameter	218—2¼ in.	183—2 in.
Flues, number and diameter	34—5½ in.	24—5⅜ in.
Tubes and flues, length	15 ft. 0½ in.	20 ft. 0 in.
Heating surface, tubes	2,655 sq. ft.	2,581 sq. ft.
Heating surface, firebox	185 sq. ft.	152 sq. ft.
Heating surface, total	2,840 sq. ft.	2,733 sq. ft.
Superheating surface	550 sq. ft.	557 sq. ft.
Grate area	56.5 sq. ft.	43.9 sq. ft.
Tender, water capacity	8,000 gal.	7,000 gal.
Tender, coal capacity	14 tons	14 tons

THOMAS SPACING TABLE FOR MULTIPLE PUNCHES.

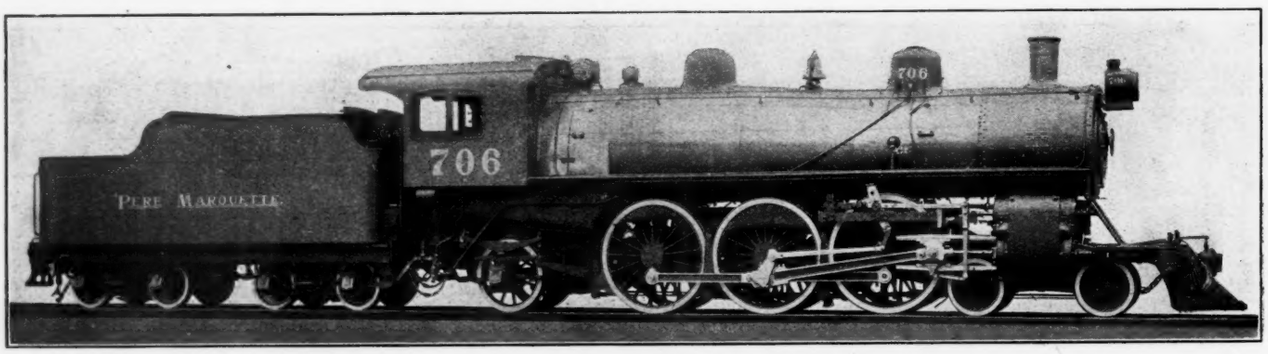
Multiple punches are used by all the shops engaged in the manufacture of steel cars and by most bridge works. The numerous rivet holes required in steel plates for girders, car sills, etc., suggested the use of an automatic attachment to multiple punches so that the spacing of the holes would be done automatically. Such attachments are used by a number of the steel car shops; the ones here illustrated are in use at the works of the Haskell & Barker Car Company, Michigan



Multiple Punch and Thomas Spacing Table; Girders Are for Special Cranes.

City, Ind. They have four sets of punches with separate runways, so that four long sill plates or four pairs of angles may pass through at one time. The device is known as the Thomas gag control spacing table, and is here used with punches built by Williams, White & Company, Moline, Ill. The spacing is obtained by means of a wooden templet with steel pins about the size of wire nails. This templet is ¾ in. x 2½ in., and can be made of ordinary templet lumber.

The spacing carriage is equipped with two paddles to operate



Pacific Type Superheater Locomotive Which Has Given Splendid Results on the Pere Marquette.

the trip mechanism. This permits the use of two entirely different spacings from the same templet without resetting or shifting the templet. When using one row of pins on the templet the paddle engaging the other row is kept clear of engagement by means of a hook provided for the purpose. The templet is fastened on the side of the spacing table by suitable clamps and can be set in probably less than half a minute. For setting the templet a permanent mark is made on the rail of the spacing table from which the operator measures the distance to the first pin with a rule. This distance equals the edge distance of the first hole.

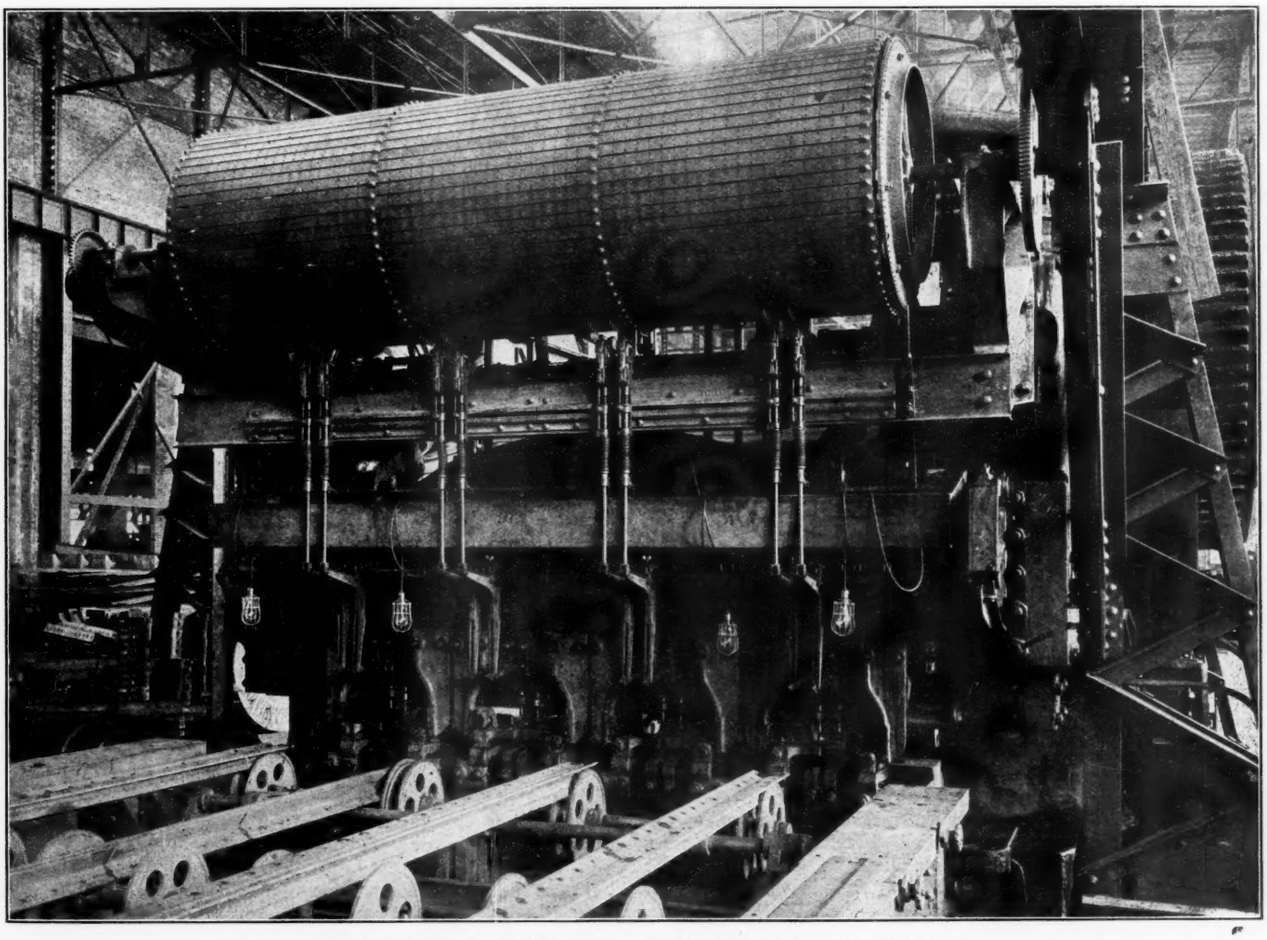
Plates are rigidly held and pulled through the punch by the spacing carriage at the front and the trailer carriage at the rear end; in this way perfectly straight lines of holes are obtained. Angles are punched back to back with fixtures mounted on the punch to maintain the gage. These fixtures rigidly hold the angles together while punching, and open the moment the punches strip. The advantage of this method is apparent; thick angles having a tendency to curve in punching are securely held together, reducing to the minimum the tendency to curve and eliminating straightening and consequent stretching.

The punches are equipped with two rows of separately adjusted gags; the front and rear rows are automatically controlled by a single switch, and the machine can be started and stopped by the same switch. The gags are automatically operated by means of a revolving drum which moves one notch with every stroke of the punch, and throws in whatever combination of gags is required by means of pins fastened to the drum. The spacing carriage controls the movement of the punch, and when the carriage stops as arranged for on the templet, the clutch on the punch is automatically thrown in. At the same time a contact switch is mounted on the main shaft of the punch, which starts the carriage the moment the punch is withdrawn from the sheet. In this way the punches cannot operate while the carriage is moving the material; nor can the carriage get under way while the punches are operating. A variable speed electric motor is provided on the spacing table, and the material can be carried back and forth over the table at will.

A variable speed motor on the punch provides variation in speed from 15 to 30 strokes per minute. The Thomas spacing table is manufactured by the Standard Bridge Tool Company, Pittsburgh, Pa.

The Oriental Company has asked for a concession to build a railway which would cross Albania lengthwise. This line would start at Monastir and connect that city, via Debra, Prisrena, Djakowa and Spek, with Mitrowitza.

Satisfactory progress in the construction of the Bagdad Railway, Asia Minor, has been made during the past year. On the Taurus section the line has reached Butlu Marash, and is expected to be at Bozanti Han by the end of the year; the 22-mile section between Bozanti Han and Dorak can not be completed till 1914, as the nature of the country necessitates a great deal of tunneling. South of the Taurus the Adana-Mersina line has been remade and communication will soon be established between Dorak and Elma Dagh via Adana, Toprakkale and Osmanie. The Anatolian line from Haidar Pasha to Eregli has been relaid and improved, and is now in good running order. The branch line from Toprakkale to Alexandretta has been begun and the plans for the port at Alexandretta have been approved. The Bagdad-Railway is almost entirely a German enterprise, financed by German capital and constructed by German engineers.



Front View of Multiple Punch with Thomas Spacing Table.

General News Section.

The Tidewater Southern has opened a line from Modesto to Big Bridge, Cal., 8 miles.

The Ohio State Tax Commission has announced net increases in the valuation of 31 steam railways operating in Ohio, aggregating $2,155,875.

A suit has been filed in the United States District Court at Chicago against the Pittsburgh, Cincinnati, Chicago & St. Louis, for violation of the federal law governing the shipment of cattle.

The Chicago, South Bend & Northern Indiana Railway, an electric interurban railway, has organized safety committees similar to those which have been formed on a large number of steam roads.

The Kansas City, Mexico & Orient has refused the demands of enginemen, trainmen and yardmen for an increase in unit wages, but has promised a change in the conditions of service, which will result in larger actual wages.

The Brotherhood of Railway Trainmen has asked the Maryland Utilities Commission to prohibit the use of pusher locomotives on certain grades on the Baltimore & Ohio and the Western Maryland, on the ground that it is dangerous.

The railways having terminals at Chicago, St. Louis and Kansas City have announced that during the summer until October 1 the freight houses in those cities will be closed on Saturday at 1 p. m., giving the freight handlers and clerks a half holiday.

It is announced in London that a bill is to be introduced by the government in the House of Commons providing means for settling labor disputes. It is understood that it will provide for compulsory arbitration and for financial guarantees for carrying out agreements.

The Hon. T. W. Crothers, Canadian minister of labor, has been asked by a deputation representing Vancouver organized labor to appoint a board under the Lemieux act to investigate the walk-out and conditions generally in the construction camps of the Canadian Northern in British Columbia.

The Temiskaming & Northern Ontario Railway Commission has decided to send out its special car of Northern Ontario products again this fall. The car was sent about the older portion of the province last fall, to give prospective settlers in the rural sections a chance to see the samples of northern crops.

The locomotive shops of the Atchison, Topeka & Santa Fe at Topeka, which have been operated on an eight-hour basis since early spring, have been placed on a nine-hour basis. The passenger car shops are now working eight and nine hours a day, and the freight car shops are on a 10-hour basis.

The New York, New Haven & Hartford is making surveys and preparing estimates for four-tracking and electrifying its main line from Boston to Providence, 45 miles. An appropriation for carrying out the work was voted by the board of directors some time ago, and construction will be started as soon as the plans and estimates are completed and approved.

John Mitchell, vice-president of the American Federation of Labor, was sentenced on July 23 in the district court at Washington to nine months' imprisonment for contempt of court in connection with the Bucks Stove & Range Company case. An appeal was taken, as was done in the cases of Samuel Gompers, president of the Federation, and Frank Morrison, secretary, who were recently sentenced for one year and for six months, respectively for a similar offense.

According to the industrial accident record of the Canadian department of labor, 62 persons were killed and 249 injured during June, 1912, in the course of their employment. There were 28 fewer fatalities than in May, 1912, and 30 less than in June, 1911. Of the non-fatal accidents, there were eight more recorded than in May, 1912, and 137 more than in June, 1911. There were but two accidents recorded causing the death of more than one workman; one of these occurred on June 1, eight railway construction laborers being killed while blasting, and the other a head-on collision of trains near Nipigon, Ont., in which four railway employees were killed.

The Illinois Central has adopted a graphic method of impressing on employees the importance of the safety habit. The current issue of the Illinois Central Magazine includes a series of full-page half-tone reproductions of photographs showing some of the common ways in which accidents are caused. The effect of the lesson is intensified by giving with each picture the names of employees recently killed or injured by such carelessness as that portrayed.

The state tax commission of Washington has announced that the assessed valuation of the railways in that state will be $15,000,000 greater this year than last. The valuation of the Chicago, Milwaukee & Puget Sound was raised from $40,632,043, to $41,376,101; of the Northern Pacific from $125,463,697 to $130,857,061; of the Oregon-Washington Railroad & Navigation Company from $43,230,299 to $48,646,517, and of the Great Northern from $66,483,805 to $70,508,764.

Jacob Johann, of Springfield, Ill., for many years indentified with the Illinois Central, and for many years an active member of the Railway Master Mechanics' Association, has presented to the library of the University of Illinois a complete file of the Proceedings of the American Railway Master Mechanics' Association and a collection of miscellaneous volumes of interest to the Department of Railway Engineering. Mr. Johann was president of the Master Mechanics' association for the year 1886-87, and is now one of its honorary members.

The coroner's jury on July 24, reported its verdict in the investigation of the Delaware, Lackawanna & Western collision at Corning, N. Y., on July 4. The jury finds that Engineman Schroeder of the express train, and Flagman Lane of train No. 9, with which the express collided, were responsible for the accident. Warrants, charging them with manslaughter in the second degree, have been issued. The flagman is held responsible because of his negligence in failing to use a torpedo. The railway company is not blamed except by the implication that it was responsible for the condition of the locomotive of the freight train, the stalling of which caused the stopping of train No. 9.

The Massachusetts State Board of Conciliation and Arbitration reported this week the results of its investigation of the strike on the Boston Elevated. The board finds the employees justified in their belief that men were discharged because of union membership, and it recommends that the company and the men confer with a view to reaching an agreement. The company contends that no strike exists, all vacancies having been filled and the cars now being run on a regular schedule, but the board holds that a strike "so long as those who strike maintain an organization or by concerted action continue in the endeavor to secure the object which they seek to attain." It is expected that the governor of the state will take steps to bring about action in line with the recommendations of the board of conciliation.

The House of Representatives has passed a bill creating a Department of Labor, the head of which to be a member of the cabinet. The purpose of the department is "to foster and promote the welfare of the wage-earners, to improve their working conditions and advance their opportunities for profitable employment." The Senate labor committee is to report the bill favorably, but it is expected that opposition will develop in the Senate, partly on the ground that there is no reason to suppose that such a department would do more favorable work in connection with labor matters than the present Department of Commerce and Labor is doing. The Senate labor committee has also decided to report to the Senate for passage the House bill providing for a commission of nine members, not less than three of whom are to be employers and three representatives of organized labor, to inquire into the condition of labor in the principal industries of the country.

Chairman Prouty on the Railway Situation.

Charles A. Prouty, chairman of the Interstate Commerce Commission, addressed the convention of the National Hay Dealers' Association at Kansas City, on July 17, on what he termed "the danger point," with reference to the commerce of the country. He said in part:

"The creation of the interstate commerce commission had two ends in view. They were to prevent discrimination on the part of the railways and to fix rates which would be reasonable. I think that these two things have been accomplished. I believe that the general level of railway rates is low enough, although in some instances it may be yet too high and in others too low. The danger point today is with respect to service and facilities."

Mr. Prouty reminded the hearers of the last serious car shortage. "And," he added, "there is a possibility that such a situation may return. If we ever have government ownership of railways in this country it will be because the shippers cannot obtain the facilities which they must have.

"It is the general idea that the commission's business is to stand for the shipper against the railways. I would remind you that conditions have changed from what they were several years ago and that it is as much our duty to see that the railways are allowed reasonable rates as for us to look at the matter only from the standpoint of the shipper. If the business of this country is to develop, the railways must develop also. In the next ten years the railways must add materially to their facilities, must buy cars and better equipment. Where is the money with which to do these things coming from? It must come from the same source it did in the first place—from private investment. Therefore, the railways must make sufficient money both for the paying of their current expenses and for a profit to their stockholders, to whom we look for the investment."

Safety Rally at Kansas City.

Arrangements are being made by the railways centering at Kansas City to hold a safety rally at that place on September 14, to which will be invited the 8,000 employees of roads entering the city and members of their families. The program of the rally will include addresses by railway officials on the causes of accidents and a display of moving pictures, showing ways in which accidents are frequently caused by carelessness, together with pictures showing the safer methods. W. B. Spaulding, claims attorney of the St. Louis & San Francisco, will have charge of the moving pictures, and addresses will be made by Gardiner Lathrop, general solicitor of the Atchison, Topeka & Santa Fe; J. D. M. Hamilton, claims attorney of the Atchison, Topeka & Santa Fe, and R. C. Richards, general claims agent of the Chicago & Northwestern.

Minority View of the Stanley Report.

Mr. Littleton, of New York, in his criticism of the language employed by his democratic colleagues in drafting a bill to amend the Sherman law, printed elsewhere in this issue, declares that the bill "is simply a complicated rearrangement of the rules of evidence and the burden of proof under existing law, without a serious effort to meet and rightly solve the great industrial problems which have grown up since the original law was enacted.

"The fundamental fault manifested throughout this bill is that it legislates primarily and directly at the size of industrial units. It preserves the chief fault of the Sherman law, which is the policy of a belated attack after a concern has grown up, instead of providing any means of prevention. It fails utterly to confer upon any governmental agency the power to see to it that concerns in restraint of trade do not grow up. It distinctly treats the symptoms and ignores the disease.

"It is my belief that the federal government should resolutely challenge every corporation concern seeking entrance into the field of interstate commerce and compel it to conform to a standard which will insure that the concern has behind every issued share of stock the real value which the share represents not only for the protection of those who buy the stock, but to insure that it will not lower the standard of its product to force a dividend on excessive capitalization, and thus tend to demoralize the industry in which it is engaged.

"As a security to the public and as a reacting influence upon the policy of the states, the federal government should require corporate concerns entering the field of interstate commerce to submit report of their status to a board created for that purpose.

"A report of each company examined with full and authentic data should be kept, and the rules governing the conduct of the board should be enacted into law by Congress, and no concern should be allowed to enter the field of interstate commerce until the board had issued a certificate to the effect that the concern had complied with the law governing its admission; the board should not have the slightest discretion as to what classes or kinds of concerns should be admitted, but only the right to say that it had complied with the law enacted by Congress.

"It ought to be provided that this certificate should be forfeited for a violation of the conditions of entry, as well as for a violation of any law governing the transaction of interstate commerce or business, this forfeiture to be upon notice, and after a hearing.

"Thus at the very foundation of interstate commerce the federal government would take a good grip upon the instruments and agencies engaged in it, and would hold that grip against the commission of economic wrongs and evils.

"A man or a concern may obtain control of 30 per cent. of the business in which he or it is engaged by sheer efficiency. He or it may have no way of knowing how much or little trade is restrained or extended because of this. The effect of these acts is as wide and infinite as all the ranges of commerce and business.

"The effect is external and beyond them. In the case of a railway the knowledge of the reasonableness is peculiarly in their possession. In the proposed bill, restraint of trade is defined as follows: 'The words restraint of trade mean in restraint in any respect or to any extent of trade or commerce among the several states or with foreign nations.'

'Under this definition no business could be conducted that is not a restraint of trade, if by restraint of trade is meant restriction of competition.

"If ten men start in the same line of business and two of them survive with the volume of trade of that business increased a hundredfold, they have extended the trade but they have undoubtedly restricted the competition to the extent of the eight competitors.

"The confusion which is perpetuated in this bill between restraint of trade and restraint of competition will cause no end of difficulty. It may be in a given case or in a number of cases that the extension of trade will result only from the limitation of competition. To say that, when it shall appear that any concern or compilation of concerns is in restraint of trade and that it controls more than 30 per cent. of the value of the total quantity of that trade sold to the United States, or more than 30 per cent. in value of the total quantity sold in that part of the United States to which such concern extends in such case, such concern will be required at the suit of the government to prove that the restraint is reasonable, is to multiply the difficulties."

Chairman Mayfield of Texas Commission Replies to President Ripley.

Chairman Allison Mayfield of the Texas Railway Commission has given out a statement taking issue with President E. P. Ripley of the Santa Fe, who recently addressed a letter to the Texas Welfare Commission at its request for his views on the general subject of the relation of Texas to its railways. An abstract of Mr. Ripley's letter was published in the *Railway Age Gazette* of May 24, page 1151. Mr. Mayfield's reply is in part as follows:

"Notwithstanding Mr. Ripley's criticism of Texas laws it is significant that the Santa Fe has built more new mileage in Texas during the last four years than any other railway. It may be of interest to note that the new mileage of the Santa Fe in this state during the period mentioned far exceeds its new construction in any other state through which the system passes. It is rapidly gridironing Western Texas, where wonderful agricultural development is in prospect for the future. It has not stopped its construction work, as might be indicated by Mr. Ripley's letter, but is now completing an additional 100 miles of its so-called cut-off line between Lubbock and Texico. It has other construction plans for that part of the state. This activity in construction work

does not indicate that Mr. Ripley and the Santa Fe interests are much disturbed over Texas laws and regulations.

"Mr. Ripley says that when he became president of the Gulf, Colorado & Santa Fe, which is one of the Atchison subsidiaries, sixteen years ago, that property may have been overcapitalized, 'but if it was it was the result of financial methods duly approved by the state of Texas and carried on under its laws and auspices.'

"This statement is not warranted by the facts, for the reason that the constitution of this state, which was adopted in 1876, contains a provision that no railway should issue stocks and bonds except for value received; or, in other words, that the stock and bonds should not be in excess of the actual value of the property. That constitutional provision was also embraced in the statute prior to the enactment of the stock and bond law. Under the stock and bond law that constitutional provision has been enforced. It was in effect before the enactment of this law, but was not executed."

Testimony Regarding the Burlington Collision at Western Springs.

The coroner's inquest on the rear end collision at Western Springs, Ill., on the Chicago, Burlington & Quincy, on July 14, in which 13 people were killed and 11 seriously injured, began at La Grange on Thursday morning, July 18, and was continued on Monday, the 22nd, and Tuesday, the 23rd.

About 20 witnesses were heard and their testimony brought out the following account of the circumstances preceding the disaster. Each operator at a block signal station in the manual block territory, which includes practically all the main lines of the Burlington, is required to record on a train sheet the time at which each approaching train is "cleared" from the nearest block station in the direction of approach to his own block station and the first block station beyond. This information is reported by telephone. The train sheet kept by Mrs. Wilcox, extra operator, who was on duty at the Western Springs block tower from midnight Saturday night until 8 o'clock Sunday morning, shows that freight train No. 74 cleared Western Springs going east at 6:05 a. m. Operator Beardsley at Congress Park, the next block station east of Western Springs, where there is a transfer to the Belt Railway, knowing that No. 74 was to do some switching, telephoned to Mrs. Wilcox asking her to let him know when she got any news of No. 4, the local passenger. Mrs. Wilcox misunderstood this request, taking it to mean that 74 was likely to be using the south track, which is the eastbound main, on No. 4's time. She therefore put the signal for the south track at stop, thinking to hold No. 4 until she received from the operator at Congress Park the clearance for the block between her station and that point. There was a dense fog, and when No. 4 came along about 15 minutes later the engineer was unable to see the signal in time to stop and overran it so far that the end of his train was several hundred feet past the signal. The flagman and brakeman both went back, the former to protect the rear and the latter to find out when they were to be allowed to proceed. Coming within sight of the signal the brakeman saw that it had been cleared, and he and the flagmen accordingly went back to the train and it proceeded after a delay of five minutes. Mrs. Wilcox reported No. 4 to West Hinsdale as clear of the block between her and that point at 6:20. Not having received the report from Congress Park, however, that it had passed that point she put the block signal at stop to hold No. 2, the Overland Express, eastbound, which followed close upon No. 4.

The engineer of No. 2 testified that he left Aurora on time and was running 50 miles an hour, that there was no fog in Aurora but that he ran into fog near Hinsdale, that the rails were wet and slippery, and that he did not see the block signal at Western Springs until he was right under it and overran the signal until the rear end of his train was 850 ft. beyond it. He noted that it was 6:29 when No. 2 stopped. He then looked out of his cab window and saw the flagman start back.

The flagman of No. 2 testified that when he heard the brakes being applied he went out on the back platform, and, as the train passed under the signal at Western Springs, noticed that it was clear. The instant the train stopped he got off and ran back, and when he got within a short distance of the tower he heard Mrs. Wilcox telephoning about No. 2 having stopped, and noticed that the signal was then at stop. As he got opposite the tower he said Mrs. Wilcox told him to go back to his train, that she would protect him against No. 8, the fast mail. He replied that he would protect his train himself. After this conversation he went westward as far as the east end of the station platform at Western Springs, which is about 1,150 ft. from the point where the rear end of No. 2 stopped, and there placed two torpedoes on the same rail about ten ft. apart. He was asked why he put down two, and replied that he was afraid one would not go off and he wanted to make sure that the engineer got the signal to stop, so he put the two down thinking that the explosions would be so close together that they would sound like one to the engineer. He admitted, however, that he heard two explosions. After he had placed the torpedoes on the rail he went a short distance, and stopped, still opposite the station, when he saw No. 8 coming. He had no lantern and no fusees, but waved his red flag. He said the brakes on No. 8 were not applied until the train got opposite the station.

The conductor of the mail train said he thought the brakes were applied just as No. 8 got opposite the Western Springs depot, but was not sure. The flagman of the same train, however, was certain that the emergency application had been made and the engine reversed, this having been done just as the car that he was in, the seventh from the engine, passed the depot. The testimony showed that No. 8 was running between 50 and 60 miles an hour, and that the application of the brakes had reduced the speed to about 30 miles before the collision occurred.

Immediately after the collision, Eckel, the flagman on No. 8, went back to protect his train. When he got to the depot he met Woodworth and asked him why he had not got out further, and Woodworth replied that he had had an argument with the operator.

Engineer Eno, of No. 2, testified that the collision took place at exactly 6:40 a. m., eleven minutes after No. 2 stopped. The time at which No. 8 passed her block station as given on Mrs. Wilcox's train sheet is 6:35. Woodworth said he figured that he had six minutes to get back in, and although he "ran and walked fast" from the instant No. 2 stopped until No. 8 passed him at the Western Springs depot, and did not stop an instant except to put the two torpedoes on the rail, he got only about 1,100 or 1,200 ft. He said he did not stop while he was talking to Mrs. Wilcox as he passed the tower. Although the foreman of the coroner's jury, who is over 62 years of age, had walked from a point 1,000 ft. east of the block signal to the west end of the Western Springs station, a distance greater than Woodworth, got back in four and one-quarter minutes, and the younger members of the jury had walked it in less than four minutes without running, Woodworth could not explain why he did not get back any farther in the time he had.

Mrs. Wilcox told a different story as to Flagman Woodworth's actions. She testified that before she could find out whether or not No. 4 had cleared, No. 2 came up and overran the signal which she had been holding against it, stopping 850 ft. beyond the signal. She said that the flagman came back to the tower, that she "gave him the board" and that he saw the signal and noted that it would allow No. 2 to proceed, and then went back to his train. She then called up West Hinsdale and reported No. 2 clear of the block at 6:27. About 6:30 she was astonished to see the flagman come back; and she asked him why No. 2 had not gone, saying she had cleared the block for No. 8. He replied, according to her testimony, that he did not know why No. 2 was waiting, and that he thought there must be something the matter with the engine. Engineer Eno said his engine was in perfect condition and ready to proceed.

When asked as to whether or not she thought it was safe for her to report the block clear between Western Springs and West Hinsdale for No. 8 when the next block was not clear and she had just witnessed both No. 4 and No. 2 overrun the signal in the fog, Mrs. Wilcox replied to the effect that she did not know any reason why she should not have done as she did.

The inquest was attended on Thursday by three inspectors of the Interstate Commerce Commission, and on Monday and Tuesday also by H. W. Belnap, chief inspector of safety appliances for the commission. F. G. Ewald, consulting engineer for the Illinois Railroad and Warehouse Commission, was also in attendance. The coroner requested the officers of the road and the representatives of the various commissions to examine the witnesses. Mr. Belnap took occasion to ask a number of questions calculated to show that the distance which a flagman is required to go back under rule 99 is left to his own discretion, that a distant signal would have given a preliminary warning of the stop signal for all three trains, that the flagman's equipment of a flag and torpedoes was inadequate for protective purposes in such a dense fog as the one that obtained on the morning of July 14, and that if trains have to run as fast as No. 8 was running to make their time they have to run so fast in fogs that their engineers cannot possibly see stop signals in time to prevent overrunning them.

The Illinois Railroad and Warehouse Commission began its investigation of the disaster on Tuesday, July 23.

The coroner's jury returned its verdict on Tuesday, July 23. It finds that Mrs. Wilcox, the operator at Western Springs, did not exercise good judgment in clearing No. 8 at Hinsdale, although she did not violate rules in doing so. It holds Woodworth, the flagman of No. 2, responsible for not getting back far enough, although he had sufficient time. Engineer Brownson of No. 8 is held responsible for running too fast in a fog. The jury recommended: that men only be employed as tower operators; that there be strict enforcement of rule No. 52, with reference to trains running under control when approaching signals in bad weather; and that distant signals be installed in connection with every signal tower. The jury said: "The public demands the rapid operation of trains, but at the same time we believe that these fast trains cannot be safely operated at schedule speed in foggy weather with the present signal equipment." The railway commission held an investigation on Tuesday and Wednesday of this week. Chief Inspector Belnap, of the Interstate Commerce Commission, assisted at the Illinois commission's investigation. F. C. Rice, general inspector of transportation of the Burlington, testified that the speed mania of the American business man is responsible for the majority of wrecks. The testimony of all other witnesses did not differ from the testimony at the cononer's inquest.

Arbitration of Eastern Enginemen's Demands.

The hearings before the arbitration committee in the controversy between the enginemen and the managers of eastern roads was continued during the past week. Following the presentations of the case for each side last week the enginemen put witnesses on the stand to testify to the increased responsibility and work required in running passenger trains because of greater speed and multiplicity of signals, the harder work required in handling the heavier freight trains and the danger and new problems encountered in electric service. This week President Worthington, of the Chicago & Alton, presented more fully the case for the railways, and he was followed by witnesses who gave testimony in support of the conditions of the railways that the enginemen now were not called on to perform unduly hard work.

B. A. Worthington on Monday began the presentation of tables and figures compiled by the conference committee of managers and the Bureau of Railway Economics. These exhibits concern the increase in size of engines, the age of enginemen and the length of their service as enginemen, enginemen's fatality statistics, average speed of freight and passenger trains, etc.

Mr. Worthington explained how the roads had attempted to make their economies to meet the increase in operating expenses. He said:

"The tendency of the rate structure has not been upward by any means. The expenses incident to full crew bills has added largely, as we show by one of our exhibits, to the expenses of the railways. The safety appliance laws are good and sound, for the benefit of the public, and are very wise; but they have added very largely to our expenses. The increases in wages of all classes of employees which we have had to meet have increased very largely, and the railways on the other hand have had but one flexible factor with which to meet this situation. The wage question was absolutely inflexible; there was no chance for any economies there, in the reduction of wages. The prices of material and supplies have been of a somewhat upward tendency. The full crew bills must be met, and the safety appliance laws must be taken care of, and the only flexible factor that the roads could find was to promote higher efficiency in the operation of the plant, and about the only way and about the most successful way that that could be done was to move the tonnage in larger train units; therefore the roads, regardless of their wishes in the matter, have been forced to adopt the larger locomotives. It has come with modern practice and it has resulted in good to all sides."

Mr. Worthington pointed to the fact that only 12 per cent. of the total number of locomotives in service on the 52 Eastern roads are of the heavier type, that is, those weighing over 200,000 lbs.

As a reason why an increase in compensation should not be granted to the enginemen—who had given as one reason for raising pay the alleged increase in speed of trains—the roads introduced an exhibit showing the average speed of passenger and freight trains in the month of October for the years 1905 and 1911. This showed that the average speed had been very slightly increased, only a fraction of a mile on most roads, and in some cases a small decrease. The average speed of passenger trains on the Baltimore & Ohio was 35.2 miles an hour in 1905 and 35.8 miles in 1911; on the New York Central the average speed in 1905 was 39.46 and in 1911, 40.02; on the Erie the average speed in 1905 was 28.3 miles while in 1911 the Erie passenger train schedule called for an average speed of 28 miles an hour. Similar speed was called for by the time tables of the various other roads.

One exhibit introduced by the railways was an extract from monthly reports of the Locomotive Engineers Mutual Life and Accident Insurance Association, published in the *Brother of Locomotive Engineers Journal*. It was accompanied by a chart which showed there had been a general decrease in the number of engineers killed per 1,000 employed. In 1900 the average membership of the Brotherhood of Locomotive Engineers was 25,552 and 3.8 members per 1,000 were killed in service. In 1901, 4.9 members per 1,000 were killed; in 1902, 7.4 members, and in 1907 it was 5.3. From that time there has been a decrease more or less regular, according to the exhibit, and in 1911 the Brotherhood of Locomotive Engineers had a membership of 63,028. In 1911, 219 members were killed, or 3.4 members per thousand. In summing up this table Mr. Worthington said: "It would not indicate—take, for instance the last five or six years, the chart would not indicate that there was any greater risk or hazard of employment."

That the average age of the 31,673 locomotive engineers employed on the 52 eastern roads is 42 years was indicated by another exhibit. In calling attention to it, Mr. Worthington said:

"It will be noted that those under 40 years of age represent nearly one-half; slightly more than one-half, 39.6 plus 10.8, that is 50.4 per cent.; 50.4 per cent. of the enginemen in active service are under 40 years of age; 28.2 per cent. between 41 and 50 years, and the remainder over 50 years of age. I think that is somewhat above the average age of the average man. I tried to get some information on that and I was not able to get it. Therefore, I could only submit a table which showed that the average age was 42 years of the men who were in active service, and since over 50 per cent. of them are over 40, it would seem that their life expectancy ought to be pretty good."

Mr. Worthington introduced one exhibit to show the length of service of the enginemen as enginemen. This indicated that the average length of service at the present time is 12.4 years. He showed, as bearing on the risk of the enginemen's work, the number employed and the number killed from 1900 to 1910, inclusive. The yearly average showed that there was an average number of engineers employed on the 52 roads of 22,925.3, and that the average number of killed per year was 81, or that the per cent. killed to the number working was 0.353 of one per cent. There was a gradual reduction in the risk; in 1902 the percentage being 0.492, while in 1911, it was 0.246.

The railways introduced one exhibit to combat Grand Chief Stone's contention that the roads take advantage of the sixteen-hour law to work hardship upon the men. The exhibit showed that of 3,474,447 freight trains operated, 27,888 exceeded sixteen

hours, or 0.8 of one per cent.; 27,229 of this number did not violate the law, as they were incident to unavoidable causes, leaving the difference of 0.13 of one per cent. which were not excused by the Interstate Commerce Commission.

During the discussion of the question of the sixteen-hour law, Mr. Morrissey asked Mr. Worthington if it was not intended, in rating the slow freight service, to secure from the engine and trainmen, hour for hour, the service for which the company pays, for each trip. Mr. Worthington said:

"I do not believe, that in any engine rating system, any road has ever considered the factor of pay to the engine or train crew. If they have ever, I have never known it. We aim to make the schedules so that we can get the freight over the road on schedule time, and a schedule usually runs, on freight trains of that character, from 10 to 12 miles, but in the movement of tonnage over a road, the delays are influenced largely by the density of traffic, and they do not always get over in the schedule time. When they do not, the road pays overtime to the train crew, but I believe I can say honestly that no road, in fixing a locomotive rating has ever figured on getting all of the work it possibly could out of its men. I do not think they ever think of that. I know I never did. How it works out in practice, of course, I cannot say, but in through freight service we do usually get full time, although on many roads they will get over in 7½ to 8 hours for ten hours work, and on other roads, they won't get over in less than 12 hours, sometimes 14 hours."

Following this Mr. Worthington introduced a number of exhibits to show the comparison in pay of conductors, firemen and trainmen, with the wages of the engineers. In submitting the table, Mr. Worthington said: "The object of that table is threefold:

"1. Mr. Stone has made the claim that the wages of the enginemen have not been increased in the same ratio as other classes of service. The table shows clearly that the enginemen have gone right along, and shows about the same increase from time to time as the conductors, and, in most cases, a higher ratio of increase than other classes of service.

"2. This table clearly indicates that the locomotive engineman is the highest paid skilled workman in the railway service.

"3. If it should be decided that nothwithstanding the fact that the engineman is the highest paid skilled workman, that he is entitled to greater compensation than he is now receiving, it would be difficult to satisfy the other employees in other grades of service who receive much less compensation, that they are not entitled to a proportionate increase."

There was considerable discussion as to the difference in the pay of employees in the western and southern groups, as compared with the eastern group. Commissioner Morrissey said: "A few years ago I undertook to get the yardmen a higher rate of pay from points in Denver and west, on account of being in a different economic zone, but my railway friends were prepared to tell me that they could live just as cheaply in California and Oregon as they could in Chicago, New York City or any other point." In answering Mr. Morrissey, Commissioner Willard said: "In making schedules that obtain between Chicago and Denver, invariably the argument has been urged that because of the fact that the West was a new country and it costs more to live and the country was less attractive to live in, that the roads west of Chicago should pay more than they should east of Chicago, and invariably they have done so. I assume that that has come about because of the force with which the representatives of labor have urged the case, and accompanied also by the fact that on account of the high rate per ton mile that obtains in the West, the railways were able to meet those conditions. If the Baltimore & Ohio, for instance, were receiving the same ton mile rate as the Burlington, it would increase our net earnings $24,000,000 per year, and that, of course, becomes a very important factor in a controversy of this kind. Immediately after the general wage increase in the East two years ago, a move was immediately started in the West, based upon the argument, largely, that the eastern wages had been raised, consequently the western rates should be raised in order that they might enjoy their differential over the East. Now, inasmuch as that argument has always been urged west of Chicago, and successfully urged, it seems to me that it is quite proper that the reverse should be considered when we are considering wages east of Chicago, unless there has been some change in conditions in the last twelve months. The wages west of Chicago are and have been constantly higher than they are east of Chicago, and it has been claimed by representatives of labor that there was good reason for that difference, and their claims have been conceded to a very appreciable extent. Now, if there is a real reason why wages west of Chicago should be higher than they are east of Chicago, it must follow that there is just as good a reason why they should be less east of Chicago than they are west of Chicago."

Following Mr. Worthington a number of witnesses were put on the stand, among them Vice-president Atterbury, of the Pennsylvania.

Mr. Atterbury said that if the Pennsylvania granted the increases demanded, which would mean an increase of 12.4 per cent. on that road, and increased other wages in the same proportion, the company's surplus would be practically wiped out, making it impossible to carry on the company's plans for improvements. It had spent $100,000,000 on such improvements between 1900 and 1910, and intended to spend $177,000,000 between 1910 and 1920. He presented figures of the average wages earned on his road by various classes of enginemen and called attention to the various increases made since 1902. He does not believe that there should be any relation between wages and tonnage of trains. However, the increase in tonnage since 1900 has been 28 per cent. and the increase in wages, 40 per cent., so that if wages were to be paid on such a basis, the enginemen are now getting more than they are entitled to.

Other witnesses then testified that the introduction of larger engines had not increased the work of the enginemen as they contend, the installation of block signals and improvements and labor saving apparatus on the locomotives having relieved them of much work they formerly had to do. It was also denied that the operation of electric trains was harder and the danger greater than those drawn by steam locomotives. The elimination of heat, cinders and gas makes the engineman's life easier. Statistics were cited to show that accidents had not increased under electric operation.

The Senate Amendments to the Parcels Post Bill.

The post office appropriation bill without the good roads provision proposed by the House and embracing a revised parcels post system with charges based on zones of distance, was reported to the Senate July 23 by the Post Office Committee. The total appropriations proposed by the bill are above those of the House measure which carried approximately $260,000,000. One of the principal increases is in the pay of railways for transporting mails, the Senate committee adding more than $2,500,000..

The parcels post section is different from that incorporated in the House bill, which provided a flat rate of postage for all distances. The Senate provision is that of the Bourne bill, slightly modified. Senator Bourne recommended that third and fourth-class mail matter be combined for the parcels post service; but the bill makes the parcels post apply only to fourth-class matter.

The Senate committee struck out of the House bill the provision giving to postal employees the right to combine in labor unions and the right to petition Congress for redress of their grievances.

It also provided for the abolishment of the system for carrying of mail by fast freight under what is known as the "blue tag" system. Under the Senate bill all second class mail would be put back in regular mail cars after August 31.

Steel cars for railway mail service, which were required by the House bill to be in universal use by American railways by 1917, are also required by the Senate bill. The House bill required the railways to replace 20 per cent. of its wooden mail cars every year, while the Senate bill would give the roads one year of grace and then require them to replace 25 per cent. of their cars each year for four years.

International Railway General Foremen's Association.

The eighth annual convention of the International Railway General Foremen's Association was held at the Hotel Sherman, Chicago, July 23-26. F. C. Pickard, of the Pere Marquette, presided, and Maclay Horne, first assistant corporation counsel of Chicago, welcomed the convention to the city. In addition to the program already published, addresses were made by James

F. De Voy, assistant superintendent of motive power of the Chicago, Milwaukee & St. Paul, and W. J. Tollerton, mechanical superintendent of the Chicago, Rock Island & Pacific.

A full report of the convention will be published in next week's issue.

W. L. Park, vice-president and general manager of the Illinois Central, addressed the association on Wednesday afternoon. He spoke frankly of the serious way in which the railways were hampered and their efficiency reduced by the unreasonable attitude of the labor organizations which are struggling under the yokes of ignorant and corrupt leadership. There has been too much managerial caution in this country for the good of the railways. When organized labor attempts to dictate who shall be employed, regardless of capability, and who shall be foremen, regardless of all qualifications other than seniority or unionism, it is digging a pitfall into which it or the employers must eventually disappear. When these organizations begin to realize that they are to man the railways and that the managers must be left to manage them, they can begin to really better their condition. No business can prosper saturated with disloyalty and steeped in incompetency, bred by labor-restricting fanatics and socialistic agitators. The time is opportune to improve conditions. The men are sick of the mistakes of their leaders and are ready to do business on business principles. Labor will find no great difficulty in reaching common ground with the railways and in restoring harmonious relations everywhere if it is disposed to apply the golden rule literally to its efforts.

The following officers were elected: President, F. C. Pickard, (P. M.); first vice-president, W. W. Scott (P. M.); second vice-president, T. F. Griffin (C. C. C. & St. L.); third vice-president, L. A. North (I. C.); fourth vice-president, William Smith (C. & N. W.); secretary-treasurer, William Hall (C. & N. W.); chairman of the executive committee, W. T. Gale (C. & N. W.); members of the executive committee—C. L. Dickert (Ga. Cent.), J. S. Sheafe (I. C.), W. G. Reyer (N. C. & St. L.), and G. H. Logan (C. & N. W.).

Following is a list of the exhibitors:

American Blau-Gas Co., New York.—Welding, brazing and cutting apparatus. Represented by A. P. Kroh, J. West and O. Carmosin.

American Specialty Co., Chicago.—Oil cups and drill sockets. Represented by H. L. Mills.

American Steel Foundries, Chicago.—Models of Simplex couplers, Davis wheels, Simplex bolsters and Andrews truck frames. Represented by W. C. Walsh, E. Walters and N. G. Wallace.

Ashton Valve Company, Boston, Mass.—Pop, safety and relief valves, pressure and vacuum gages. Represented by J. W. Motherwell and J. F. Gettrust.

Bausch Machine Tool Co., Springfield, Mass.—Photographs of drilling and boring machines. Represented by S. W. Fish.

Bowser & Co., S. F., Fort Wayne, Ind.—Models of oil storage and filtration systems. Represented by John L. Handy.

Carborundum Co., Niagara Falls, N. Y.—Abrasives. Represented by R. S. Marvin, C. C. Schumacker, R. H. Hogg and W. W. Sanderson.

Celfor Tool Co., Buchanan, Mich.—High speed forged twist drills, reamers, counter sinks, flue cutters, flue sheet drills, staybolt telltale drills and rail bending rails. Represented by J. J. Dale, Wm. Brewster and W. Nochumsom.

Chicago Pneumatic Tool Co., Chicago.—Pneumatic tools, electric drills, sectional models showing the working of pneumatic hammers and drills. Represented by C. E. Walker, T. G. Smallwood and J. C. Campbell.

Cleveland Pneumatic Tool Co., Cleveland, Ohio.—Air hose coupling portable tools. Represented by C. J. Albert.

Cleveland Twist Drill Co., Cleveland, Ohio.—Drills, reamers and sockets. Represented by H. S. White.

Creereo Adams Co., Chicago.—Joyce Cridland jacks, Alexander Milburn headlights, Shelby steel tubing and Jessop tool steel. Represented by R. Wallace and W. J. Clark.

Crucible Steel Company of America, Pittsburgh, Pa.—Samples of tool steel. Represented by F. Baskerfield, W. M. Stevenson and F. A. Lawler.

Dearborn Drug & Chemical Co., Chicago.—Scientific feed water treatment for locomotive and stationary boilers. Represented by George R. Carr and W. S. Reid.

Detroit Lubricator Co., Detroit, Mich.—Locomotive lubricators. Represented by A. D. Howard.

Dixon Crucible Co., Jos., Jersey City, N. J.—Graphite productions. Represented by F. R. Brandon.

Emery Pneumatic Lubricator Co., St. Louis, Mo.—Lubricants. Represented by N. J. McAloney.

Firth Sterling Steel Co., Pittsburgh, Pa.—Blue-chip, high-speed, tool steel. Represented by J. J. Coleman.

Garlock Packing Co., Elmira, N. Y.—Samples of throttle air pump and shop packing. Represented by J. P. Landreth and Phil Arnold.

Geometric Tool Co., New Haven, Conn.—Self-opening dies, collapsing caps, threading machine grinders. Represented by George T. Case and J. Jennings.

Goldschmidt Thermit Co., New York.—Welding process and metals. Represented by H. S. Mann, H. D. Kelly and Charles D. Young.

Greene, Tweed & Co., New York.—Packing. Represented by F. E. Ramsley.

Grip Nut Co., Chicago.—Grip nuts, monogram bolt fastenings, oil boxes, dust guards and grip nut angle wrenches. Represented by E. R. Hibbard, J. W. Hibbard, W. E. Sharpe and W. G. Willcoxson.

Hunt-Spiller Manufacturing Co., Boston, Mass.—Driving boxes, shoes and wedges, piston heads, bushings, gages and packings. Represented by J. G. Platt, V. W. Ellet and J. M. Monroe.

Independent Pneumatic Tool Co., Chicago.—Pneumatic tools. Represented by R. T. Scott, G. C. Wilson and V. R. Robinson.

Jenkins Brothers, New York.—Valves and packing. Represented by B. J. Neeley.

Johns-Manville Co., H. W., New York.—Asbestos packing, lagging and pipe covering, expander rings and gaskets. Represented by D. F. Jennings, J. C. Younglove and P. C. Jacobs.

Keystone Lubricator Co., Philadelphia.—Grease, driving box adjustable wedge, driving box indicator. Represented by T. W. Armstrong, J. M. Mawery and W. E. Harrington.

Locomotive Improvement Co., Clinton, Iowa.—Removable driving box brass, lateral motion plates, flangeless shoes and wedges, solid end main rods. Represented by L. W. Barker.

Locomotive Superheater Co., New York.—Model of locomotive superheater. Represented by R. E. Ryder and R. R. Porterfield.

Manning, Maxwell & Moore, Inc., New York.—Hancock inspirators, check and safety valves; Ashcroft gages and other brass goods. Represented by C. L. Brown and J. H. Bush.

Monarch Pneumatic Tool Co., St. Louis, Mo.—Portable pneumatic tools. Represented by Wm. Miller and P. F. Flavin.

McCord & Co., Chicago.—Locomotive lubricators, pinless lid journal boxes. Represented by R. L. McIntosh and H. S. Whitehair.

National Machinery Co., Tiffin, Ohio.—Semi-automatic hammer bolt header, semi-automatic nut tapper, quadruple motor drive bolt cutter, single bolt cutter, die sharpener. Represented by E. R. Frost, H. E. Lott, C. A. Spraggins and K. L. Ernest.

Nathan Manufacturing Co., New York.—Injectors, lubricators and oilers. Represented by George Royal and A. S. Work.

National Boiler Washing Co., Chicago.—Photographs of boiler washout system. Represented by E. B. White and W. White.

Oak-Grove Handle Co., Cameron, Wis.—Axe, pick and hammer handles. Represented by J. C. Templeton.

Ohio Injector Co., Chicago.—Injectors. Represented by W. S. Furry.

Osborne Valve & Joint Co., Chicago.—Valves and joints. Represented by W. L. Osborne.

O'Malley Beare Valve Co., Chicago.—Valves. Represented by Edward O'Malley, Thomas O'Malley and H. A. Crews.

Pilliod Co., Swanton, Ohio.—Baker valve gear model. Represented by F. S. Wilcoxen.

Racine Tool & Machine Co., Racine, Wis.—Metal cutting machines. Represented by J. M. Jones.

Railway Journal Publishing Co., Chicago.—*The Railway Journal.* Represented by E. C. Cook.

Reed Manufacturing Company, Erie, Pa.—Vises. Represented by T. O. Raaen and R. H. Wilmot.

Simmons-Boardman Publishing Co., New York.—*Railway Age Gazette, American Engineer,* and *Signal Engineer.* Represented by R. V. Wright, L. B. Sherman, J. N. Reynolds, F. H. Thompson and Kenneth Cloud.

Sinclair Co., Angus, New York.—*Railway and Locomotive Engineering.* Represented by Angus Sinclair and Allen G. Wood.

J. T. Ryerson & Son, Chicago.—High speed tool steels, twist drills, reamers, expanders and chain hoists. Represented by F. L. Carroll and A. C. Perrin.

Storrs Mica Co., Owego, N. Y.—Headlight chimneys, lantern globes and hose clamps. Represented by C. P. Storrs.

Templeton Kenly & Co., Chicago.—Jacks. Represented by A. E. Barron.

Watson-Stillman Co., New York.—Photographs of hydraulic tools. Represented by Frank H. Clark.

Westralian Rotary Spark Arrester Co., New York.—Spark arresters. Represented by C. Garton.

Whitman & Barnes Manufacturing Co., Akron, Ohio.—Twist drills, reamers and wrenches. Represented by A. W. Wange.

MEETINGS AND CONVENTIONS.

The following list gives names of secretaries, dates of next or regular meetings, and places of meeting.

AIR BRAKE ASSOCIATION.—F. M. Nellis, 53 State St., Boston, Mass. Convention, May, 1913, St. Louis, Mo.

AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—A. G. Thomason, Boston, Mass.

AMERICAN ASSOCIATION OF GENERAL PASSENGER AND TICKET AGENTS.—W. C. Hope, New York; next convention, September 12, Seattle, Wash.

AMERICAN ASSOCIATION OF FREIGHT AGENTS.—R. O. Wells, East St. Louis, Ill.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—W. C. Cooder, Carew building, Cincinnati, Ohio; 3d Friday of March and September.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—H. C. Donecker, 29 W. 39th St., New York. Convention, October 7-11, Chicago.

AMERICAN ELECTRICAL RAILWAY MANUFACTURERS' ASSOC.—George Keegan, 165 Broadway, New York. Meetings with Am. Elec. Ry. Assoc.

AMERICAN RAILWAY ASSOCIATION.—W. F. Allen, 75 Church St., New York; annual, November 20, 1912, Chicago.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W., Chicago. Convention, 3d week in Oct., Baltimore, Md.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—E. H. Fritch, 1011 S. Michigan Ave., Chicago. Convention, March 18-20, 1913, Chicago.

AMERICAN RAILWAY MASTER MECHANICS' ASSOC.—J. W. Taylor, Old Colony building, Chicago.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—M. H. Bray, N. Y. N. H. & H., New Haven, Conn.

AMERICAN SOCIETY FOR TESTING MATERIALS.—Prof. E. Marburg, University of Pennsylvania, Philadelphia, Pa.; annual, June, 1913.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—C. W. Hunt, 220 W. 57th St., New York; 1st and 3d Wed., except June and August, New York.

AMERICAN SOCIETY OF ENGINEERING CONTRACTORS.—J. R. Wemlinger, 13 Park Row, New York; 2d Tuesday of each month, New York.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York.
AMERICAN WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, B. & O., Baltimore, Md. Convention, 3d week in January, 1913, Chicago.
ASSOCIATION OF AMERICAN RAILWAY ACCOUNTING OFFICERS.—C. G. Phillips, 143 Dearborn St., Chicago.
ASSOCIATION OF RAILWAY CLAIM AGENTS.—J. R. McSherry, C. & E. I., Chicago.
ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W. Ry., Chicago; annual, October 21-25, Chicago.
ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—P. W. Drew, 112 West Adams St., Chicago; annual, May 20, 1913, St. Louis, Mo.
ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—G. P. Conard, 75 Church St., New York. Meeting Dec. 10-11, 1912, New Orleans, La.
CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk Ry., Montreal, Que.; 2d Tuesday in month, except June, July and Aug., Montreal.
CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 413 Dorchester St., Montreal, Que.; Thursdays, Montreal.
CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 North 50th Court, Chicago; 2d Monday in month, Chicago.
CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York; 2d Thurs. in Jan. and 2d Fri. in March, May, Sept., Nov., Buffalo, N. Y.
CIVIL ENGINEERS' SOCIETY OF ST. PAUL.—L. S. Pomeroy, Old State Capitol building, St. Paul, Minn.; 2d Monday, except June, July, August and September, St. Paul.
ENGINEERS' SOCIETY OF PENNSYLVANIA.—E. R. Dasher, Box 704, Harrisburg, Pa.; 1st Monday after 2d Saturday, Harrisburg, Pa.
ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—E. K. Hiles, 803 Fulton building, Pittsburgh; 1st and 3d Tuesday, Pittsburgh, Pa.
FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, Richmond, Va.
GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—E. S. Koller, 226 W. Adams St., Chicago; Wed. preceding 3d Thurs., Chicago.
INTERNATIONAL RAILWAY CONGRESS.—Executive Committee, 11, rue de Louvain, Brussels, Belgium. Convention, 1915, Berlin.
INTERNATIONAL RAILWAY FUEL ASSOCIATION.—C. G. Hall, 922 McCormick building, Chicago.
INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—L. H. Bryan, Brown Marx building, Birmingham, Ala.
INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—A. L. Woodworth, Lima, Ohio. Convention, August 20, Chicago.
MAINTENANCE OF WAY MASTER PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—W. G. Wilson, Lehigh Valley, Easton, Pa. Convention, November 19-21, Chicago.
MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., New York. Convention, May, 1913, Chicago.
MASTER CAR BUILDERS' ASSOCIATION.—J. W. Taylor, Old Colony building, Chicago.
MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOC. OF U. S. AND CANADA.—A. P. Dane, B. & M., Reading, Mass. Convention, September 10-13, Denver, Col.
NATIONAL RAILWAY APPLIANCES ASSOC.—Bruce V. Crandall, 537 So. Dearborn St., Chicago. Meetings with Am. Ry. Eng. Assoc.
NEW ENGLAND RAILROAD CLUB.—G. H. Frazier, 10 Oliver St., Boston, Mass.; 2d Tuesday in month, except June, July, Aug. and Sept., Boston.
NEW YORK RAILROAD CLUB.—H. D. Vought, 95 Liberty St., New York; 3d Friday in month, except June, July and August, New York.
NORTHERN RAILROAD CLUB.—C. L. Kennedy, C. M. & St. P., Duluth, Minn.; 4th Saturday, Duluth.
PEORIA ASSOCIATION OF RAILROAD OFFICERS.—M. W. Rotchford, Union Station, Peoria, Ill.; 2d Tuesday.
RAILROAD CLUB OF KANSAS CITY.—C. Manlove, 1008 Walnut St., Kansas City, Mo.; 3d Friday in month, Kansas City.
RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 2 Rector St., New York; annual, November 20, 1912, New York.
RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Penna. R. R., Pittsburgh, Pa.; 4th Friday in month, except June, July and August, Pittsburgh.
RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOC.—J. Scribner, 1021 Monadnock Block, Chicago. Meetings with Assoc. Ry. Elec. Engrs.
RAILWAY GARDENING ASSOCIATION.—J. S. Butterfield, Lee's Summit, Mo.; next meeting, August 13-16, Roanoke, Va.
RAILWAY DEVELOPMENT ASSOCIATION.—W. Nicholson, Kansas City Southern, Kansas City, Mo. Next meeting, Nov. 17, 1912, Cincinnati, Ohio.
RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, Bethlehem, Pa. Convention, Oct. 8-11, Quebec.
RAILWAY STOREKEEPERS' ASSOCIATION.—J. P. Murphy, Box C, Collinwood, Ohio.
RAILWAY SUPPLY MANUFACTURERS' ASSOC.—J. D. Conway, 2135 Oliver bldg., Pittsburgh, Pa. Meetings with M. M. and M. C. B. assocs.
RAILWAY TEL. & TEL. APPLIANCE ASSOC.—W. E. Harkness, 284 Pearl St., New York. Meetings with Assoc. of Ry. Teleg. Sups.
RICHMOND RAILROAD CLUB.—F. O. Robinson, Richmond, Va.; 2d Monday, except June, July and August.
ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—L. C. Ryan, C. & N. W., Sterling, Ill. September 10-13, Buffalo, N. Y.
ST. LOUIS RAILWAY CLUB.—B. W. Fraumenthal, Union Station, St. Louis, Mo.; 2d Friday in month, except June, July and Aug., St. Louis.
SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmonds, 3868 Park Ave., New York. Meetings with annual convention Railway Signal Association.
SOCIETY OF RAILWAY FINANCIAL OFFICERS.—C. Niquist, La Salle St. Station, Chicago.
SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, A. & W. P. Ry., Montgomery, Ala.; annual, Oct. 17, Atlanta, Ga.
SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant bldg., Atlanta, Ga.; 3d Thurs., Jan., March, May, July, Sept., Nov., Atlanta.
TOLEDO TRANSPORTATION CLUB.—J. G. Macomber, Woolson Spice Co., Toledo, Ohio; 1st Saturday, Toledo.
TRAFFIC CLUB OF CHICAGO.—Guy S. McCabe, La Salle Hotel, Chicago; meetings monthly, Chicago.
TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 290 Broadway, New York; last Tuesday in month, except June, July and August, New York.
TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Erie, Pittsburgh, Pa.; meetings monthly, Pittsburgh.
TRAIN DESPATCHERS' ASSOCIATION OF AMERICA.—J. F. Mackie, 7042 Stewart Ave., Chicago.
TRANSPORTATION CLUB OF BUFFALO.—J. M. Sells, Buffalo; first Saturday after first Wednesday.
TRANSPORTATION CLUB OF DETROIT.—W. R. Hurley, L. S. & M. S., Detroit, Mich.; meetings monthly.
TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. & H. R., East Buffalo, N. Y.; annual, Aug. 27-30, Chicago.
WESTERN CANADA RAILWAY CLUB.—W. H. Rosevear, P. O. Box 1707, Winnipeg, Man.; 2d Monday, except June, July and August, Winnipeg.
WESTERN RAILWAY CLUB.—J. W. Taylor, Old Colony building, Chicago; 3d Tuesday of each month, except June, July and August.
WESTERN SOCIETY OF ENGINEERS.—J. H. Warder, 1735 Monadnock Block, Chicago; 1st Monday in month, except July and August, Chicago.

Traffic News.

Hearings have been begun at New York by the official classification committee to hear protests and suggestions against proposed changes in the official classification. Members of the uniform classification committee are in attendance.

It is announced at Washington that the "Chamber of Commerce of the United States" is shortly to begin regular operations with definite offices in Washington; but no definite information has been given out as to what the work of this Chamber is to be.

The Pennsylvania Railroad has removed the embargo on perishable freight to its Manhattan piers. It was caused by the strike of its freight handlers. During the strike perishable freight was carried no farther than the Jersey side of the North river.

The Ohio river was, during the latter part of last week, navigable for coal barges, and it is said that 7,000,000 bu. of coal were started down the river in barges on Friday. This is the first time in five years that barges have been able to leave Pittsburgh in July.

Reports from Minneapolis quote railway officers as saying that nearly 10,000 grain cars are being built for orders by railways radiating from Minneapolis into grain-producing territories. It is said that these cars will, by September 1, all have been distributed through the northwest.

The Missouri Pacific and the Texas & Pacific have made a proportional rate of 14½ cents per hundred pounds on all export grain to New Orleans from lower Missouri river points, and 15½ cents from upper Missouri river points. This is a reduction of three cents per hundred pounds on corn and four cents on wheat.

The board of railway commisisoners of Canada began on July 17, at Fort William, a series of hearings on freight rates west of Port Arthur. The hearings will be continued at Winnipeg, Moose Jaw, Regina, Saskatoon, Edmonton and Vancouver. They include 23 rate cases and 95 complaints and applications of various kinds.

Although the new connection between the Western Maryland at Cumberland, Md., and the Pittsburgh & Lake Erie at Connellsville has not been opened to business, it has been called upon to handle over 20 miles of its line all of the Baltimore & Ohio's business because of the cave-in of the Sand Patch tunnel of the Baltimore & Ohio.

The Missouri, Kansas & Texas and the Illinois Traction System have come to an agreement which provides for the sale of through tickets between all points on the M. K. & T., and points on the Illinois Traction System lines. Tickets will be placed on sale at all offices reading jointly via St. Louis, where the M. K. & T., and the Illinois Traction System connect.

An arrangement has been made between the Long Island Railroad and the Pennsylvania by which carload freight from Brooklyn to southern and western destinations will be handled as quickly as from the Manhattan piers of the Pennsylvania, and L. C. L. freight will be handled not more than 24 hours later from Brooklyn than from the Manhattan piers.

The freight and passenger traffic agreement between the Canadian Pacific and the Northern Pacific, which has been in force for a number of years, terminated recently and it is understood has been renewed for 10 years. Under this agreement, Seattle freight and passengers are interchanged between the two roads at Sumas, Wash. Renewal of the agreement is on the same basis as the old agreement.

The third "Get Acquainted" special which is being run over the Oregon Short Line has on board three assistant general managers, a general attorney, a general freight agent, an auditor, an assistant general freight agent, an assistant general passenger agent, a claims attorney, a signal engineer, a superintendent of dining cars, a freight claims agent, a car service agent, a local treasurer, a superintendent of telegraph, a tax agent, a superintendent of the Pullman Company, a superintendent of the American Express Company, and a superintendent of a private car company.

INTERSTATE COMMERCE COMMISSION.

The commission will hold a hearing on the rates, practices, rules and regulations of carriers in the transportation of cement, iron ore, iron and steel and their products to all points in the Official classification territory.

Frank Lyon, attorney for the Interstate Commerce Commission during the advance rate hearings, and formerly special examiner for the commission, has resigned, and if his resignation is accepted, he plans to take up the private practice of law.

The commission has suspended from August 1, until November 29, a tariff canceling the existing joint commodity rates on cottonseed, in carloads, from Stigler, Okla., to Kansas City, Mo., and certain other points, leaving combination rates to apply. The present joint rate is 16 cents per 100 lbs., and the combination which would be applicable after the cancellation of the joint rate would be 23¼ cents per 100 lbs.

Pine Lumber Reduced.

Deming Lumber Company v. Southern Pacific et al. Opinion by the commission:

The commission found that the rate of 34 cents per 100 lbs. for the transportation of pine lumber in carloads from points in Louisiana and Eastern Texas to Deming, N. Mex., was unreasonable to the extent that it exceeds 29 cents. (24 I. C. C., 598.)

Reparation Awarded.

Western Traffic Association et al v. Boston & Maine et al. Opinion by the commission:

The complainants were charged one and one-half times the first class rating on bottle-washing machines shipped from Lynn, Mass., to San Francisco, Cal. This rate amounted to $4.50 per 100 lbs. At the time of the shipment there was in effect a class rate of $3 per 100 lbs. for the transportation of tub-bottle washing machines between these points. This class rate is still in effect. The commission found that the rate of $4.50 per 100 lbs. was unreasonable to the extent that it exceeds $3 per 100 lbs. (24 I. C. C., 592.)

Complaint Dismissed.

Chaffin Coal Company v. Chicago, Milwaukee & St. Paul. Opinion by the commission:

The commission found that the rate of $1.75 per ton charged on a carload of coal screenings from Chicago to Platteville, Wis., was not unreasonable. (24 I. C. C., 321.)

Edward T. Slider v. Southern Railway et al. Opinion by the commission:

The complainants contend that the rates on coal from New Albany, Ind., to East St. Louis, Ill., and on sand and gravel from New Albany, to Louisville, Ky., are unreasonable. The commission found that the evidence was not conclusive. (24 I. C. C., 312.)

Memphis Freight Bureau et al. v. St. Louis & San Francisco. Opinion by the commission:

The complainant attacks as unreasonable a six months' limit in connection with the milling-in-transit of logs, etc., at Memphis, Tenn. The commission found that as the privilege is conditioned upon the use to which the commodity is put, it should not be sanctioned by an award of reparation. (24 I. C. C., 602.)

New Albany, Ind., Discriminated Against.

Manufacturers' and Merchants' Association of New Albany, Ind., et al. v. Aberdeen & Asheboro et al. Opinion by Commissioner Clements:

New Albany, Ind., is situated on the north bank of the Ohio river opposite to Louisville, Ky. These cities are connected by bridges. The toll of the bridge companies for the use of their tracks from Louisville to New Albany average about one cent per 100 lbs. on freight shipments. The local rate of the carriers operating over these bridges averages about two cents per 100 lbs., including the bridge toll. The rates from New Albany to the territory south of the Ohio and Potomac rivers and east of the Mississippi river, with the exception of the states of Kentucky and Tennessee, are the same as from Louisville. In the reverse direction Louisville and New Albany take the same rates from certain points, while from a large part of the territory New Albany rates exceed the Louisville rates by the amount of the bridge toll. On shipments from the south to New Albany for beyond the Louisville rates apply. With these exceptions the rates from the southern territory to New Albany are made by adding to the Louisville rate the full local rate between New Albany and Louisville as distinguished from the bridge toll. In general, the rates from the south to the north bank Ohio river crossings, including Cincinnati, Evansville and Cairo, are the same as the rates to the south bank. The complainants allege that the practice of the defendants in making their rates from the south to New Albany higher than the rates to Louisville subjects New Albany to undue discrimination. The defendants insist that there is a difference in competitive conditions at the north bank Ohio river crossings, particularly at Evansville. The evidence of the defendant on this point, however, was not conclusive. The commission found that the practice of the defendants of omitting the bridge toll in its rates to the north bank Ohio river crossings, and, at the same time, charging the bridge toll on shipments from the same points of origin to New Albany, subjected New Albany to undue discrimination, and ordered the carriers to desist from this practice in future. (24 I. C. C., 331.)

Union Bridge, Md., Discriminated Against.

In re investigation and suspension of advances in rates by carriers for the transportation of cement in carloads from Union Bridge, Md., to Norfolk, Va., and other destinations. Opinion by Commissioner Clements:

It was alleged that the change in the relation of rates between Union Bridge and Security, Md., proposed in the tariff of the Western Maryland, which has been suspended until January 4, 1913, is unjustly discriminatory against Union Bridge in favor of Security. Prior to the filing of the suspended tariff the same rates applied to shipments from Union Bridge and Security to points on connecting lines parties to that tariff. The proposed tariff leaves unchanged the rates from Union Bridge, but reduces the rate from Security. The commission found that these two points should take the same rates and ordered the cancellation of the proposed changes. (24 I. C. C., 290).

STATE COMMISSIONS.

The Massachusetts Railway Commission has refused to grant permission for a special Sunday excursion train which was to be run to a new land development property. The commission held that the excursion might be run on a week day.

The New York Public Service Commission, Second district, has ordered the National Express Company to reduce its rates on laundry from Sidney to Wellsbridge, Afton, Otego and Harpersville from 50 cents per 100 lbs., gross weight, including container, to 30 cents per 100 lbs. This company has also been ordered to reduce its rates on laundry from Sidney to Worcester from 60 cents per 100 lbs. to 40 cents.

COURT NEWS.

The Uncle Sam Oil Company of Arizona and the Tidewater Pipe Company of Pennsylvania have filed a petition with the United States Commerce Court asking it to set aside the order of the Interstate Commerce Commission in the pipe line cases.

W. F. Jacoby & Co., coal operators, have filed suit in the United States District Court against the Pennsylvania Railroad to recover $27,333 for alleged discrimination in the distribution of coal cars. The suit is based on the ruling of the Interstate Commerce Commission, mentioned in the *Railway Age Gazette* of April 26, p. 974, and May 3, p. 1022.

Attorney-General Hogan, of Ohio, has announced that he is prepared to bring suit in the circuit court under the Sherman anti-trust law to oust the Pennsylvania from Ohio. The suit is based on a charge that there is a conspiracy between the Pennsylvania and the Central Traffic Association to discredit and break down the 2 cent fare law of Ohio.

Railway Officers.

ELECTIONS AND APPOINTMENTS.

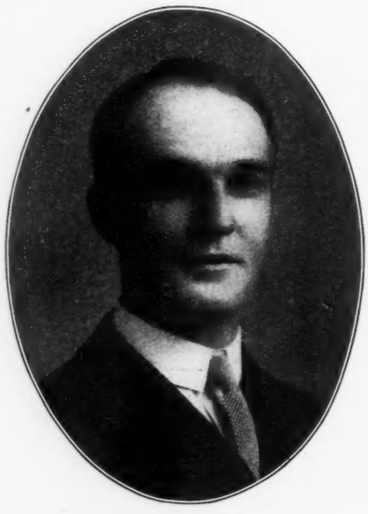
Executive, Financial and Legal Officers.

E. W. Grice, general manager of the Chesapeake & Ohio, at Richmond, Va., has been appointed assistant to fourth vice-president of the Chesapeake & Ohio and the Hocking Valley, and his former position has been abolished. Mr. Grice will perform such duties as may be assigned to him.

The new officers of the Tampa Northern are C. R. Capps, president; R. L. Nutt, secretary and treasurer; D. C. Porteous, assistant secretary, and T. W. Roby, comptroller. All of these are now officers of the Seaboard Air Line, which has purchased the entire capital stock of the Tampa Northern.

W. A. Webb has been appointed assistant to the president of the Missouri, Kansas & Texas system, with office at Dallas, Tex. About two months ago Mr. Webb was appointed assistant to the president of the Texas lines, and his jurisdiction has now been extended over the lines north of Denison.

James Gibson Wilson, who has been appointed assistant interstate commerce attorney of the Union Pacific, the Oregon Short Line, the Oregon-Washington Railroad & Navigation Company and the Southern Pacific Company, with office at Chicago, as has been announced in these columns, was born April 21, 1876, at Streator, Ill. He graduated from Portland Academy in 1895, from Princeton University in 1899, and from the law department of the University of Oregon in 1901. In September, 1899, he entered the office of the general attorney of the Oregon Railroad & Navigation Company, and he was with that road and its successor, the Oregon-Washington Railroad & Navigation Company, continuously until July 1, 1912. He was appointed asisstant general attorney of the latter road in December, 1911, which office he held at the time of his recent promotion.



J. G. Wilson.

Operating Officers.

M. J. Larson, trainmaster of the Chicago, Milwaukee & St. Paul at Sioux City, Iowa, has been appointed assistant to the assistant general manager, with office at Chicago.

John C. Maclay has been appointed superintendent in charge of operations of the Erie Railroad Transit Line, operated by the Erie Railroad, with headquarters at Buffalo, N. Y.

R. C. Morgan, formerly superintendent of the Great Northern at Marcus, Wash., has been appointed superintendent of the Fort William terminal of the Canadian Pacific, with headquarters at Fort William, Ont.

F. E. Bolte, trainmaster of the Terminal Railroad Association of St. Louis, has been appointed superintendent of transportation of the Wabash Railroad, with office at St. Louis, Mo., succeeding D. I. Forsyth, transferred to other duties.

N. E. Brooks, division engineer of the Alberta division of the Canadian Pacific, at Calgary, Alta., has been appointed acting general superintendent of that division, succeeding A. Price, general superintendent, granted leave of absence.

H. P. Justin has been appointed trainmaster of the Chicago Terminal division of the Chicago, Rock Island & Pacific, with office at Chicago, succeeding M. J. Brew, whose appointment as division engineer on the same division has been announced in these columns.

The office of E. W. Grice, general manager of the Chesapeake & Ohio, with headquarters at Richmond, Va., having been abolished, all reports heretofore made to the general manager will in future be made to the fourth vice-president. (See an item under Executive, Financial & Legal Officers.)

Michael H. Cahill, assistant superintendent of the Pittsburgh division of the Baltimore & Ohio, at Pittsburgh, Pa., has been promoted to superintendent of the Newark division, with headquarters at Newark, Ohio, succeeding J. F. Irwin, resigned, who will be assigned to other duties. Effective August 1.

J. P. Kirkpatrick, trainmaster of the Grand Trunk, at Ottawa, Ont., and not J. B. Kirkpatrick, as was announced in our issue of July 5, page 33, has been appointed superintendent of the Grand Trunk Pacific, with jurisdiction over the Melville-Regina, Regina-Boundary and Regina-Moose Jaw Lines, with office at Regina, Sask., succeeding W. B. Cronk, resigned.

F. W. Scott, master of trains of the Georgia Southern & Florida at Macon, Ga., has been appointed superintendent, succeeding H. Hatcher, resigned to go to another company. A. E. Marsh, chief despatcher, has been appointed master of trains, succeeding Mr. Scott, and W. G. Prator has been appointed chief despatcher, succeeding Mr. Marsh, all with offices at Macon, effective August 1.

R. Mahon has been appointed assistant superintendent of the Salt Lake division of the Denver & Rio Grande and S. L. Racey, chief despatcher at Salt Lake City, has been appointed trainmaster, with jurisdiction over the Valley district, Ogden to Thistle, and its branches, including the Bingham district. G. D. Hughes, trainmaster at Helper, Utah, has been given jurisdiction over the Mountain district, Thistle to Helper, including branches.

H. F. Anderson, formerly superintendent of the Houston division of the Galveston, Harrisburg & San Antonio at San Antonio, Tex., has been appointed superintendent of the Missouri, Kansas & Texas of Texas, with office at Denison, Tex., succeeding J. Munday, resigned to accept service with another company. Mr. Anderson's jurisdiction extends over the Dallas division from Denison to Dallas; over the Fort Worth division from Denison to Whitesboro; and over the Denton and Henrietta divisions and Bonham and Sherman branches.

Edmund L. Magers, who has been appointed superintendent of the St. Louis & San Francisco, with office at Sapulpa, Okla., as has been announced in these columns, was born February 13, 1872, at Churubusco, Ind. He received a high school education in his native town, and began railway work on the Eel River division of the Wabash in February, 1887. He was with the Southern Pacific Company at Houston, Tex., from December, 1889, to April, 1903, having been consecutively operator, despatcher, chief despatcher and trainmaster. For four and a half years from April, 1903, he was chief despatcher of the Houston & Texas Central at Ennis, Tex., and in October, 1907, went with the St. Louis & San Francisco at Fort Scott, Kan., as chief despatcher. He was later made assistant superintendent, from which office he has just been promoted to superintendent at Sapulpa.

Robert McNair Hoover, whose appointment as superintendent of the Sunset-Central lines, with offices at Ennis, Tex., has been announced in these columns, was born July 23, 1863, at Summit, Miss. He was educated in the Peabody public school at Summit, and began railway work in 1884 with the Galveston, Harrisburg & San Antonio at Eagle Pass, Tex. He was employed on various divisions of the Harriman Lines as brakeman, yardmaster and freight and passenger conductor until July, 1906, when he was appointed inspector of train service of the Sunset-Central lines, reporting to the vice-president. In December, 1906, he was made trainmaster of the Houston division, and six months later was transferred with the same title to the El Paso division. He was appointed assistant superintendent of the El Paso division in August, 1907, and during the present month he was promoted to superintendent of the First division of the Sunset-Central lines, as noted above.

W. H. Averell, whose appointment as assistant general superintendent of the Baltimore & Ohio, with headquarters at Pittsburgh, Pa., has been announced in these columns, was born on May 13, 1879, at Ogdensburg, N. Y., and after attending elementary schools in Rochester, and St. Paul's School at Concord, N. Y., he entered Yale University and was graduated in the class of 1900. In September of the same year he began railway work and for two years was in the accounting, track and stores department of the Great Northern. In September, 1902, he was appointed statistical clerk of the Southern Pacific, and was then consecutively trainmaster, assistant superintendent and superintendent with that company at Los Angeles, Cal., until February, 1911. The following May he went to the Baltimore & Ohio as assistant to general manager at Baltimore, Md., which position he held at the time of his recent appointment as assistant general superintendent, as above noted.

Edward Rowland Lewis, whose appointment as assistant to general manager of the Duluth, South Shore & Atlantic, with office at Duluth, Minn., has been announced in these columns, was born November 20, 1869, at Raritan, N. J. He attended the public schools at Champaign, Ill., until 1885, received the degree of bachelor of science from the University of Iowa in 1890, and six years later received the degree of civil engineer from the same institution. Mr. Lewis began railway work in 1885 with the Missouri Pacific, with which road he was consecutively axman and rodman on construction, levelman, clerk in the timber department, levelman on bridge location, and, from 1891 to 1892, division engineer. He was reclamation engineer in Wyoming from 1893 to 1895, and was then for two years division engineer on the U. S. government levees on the Mississippi river improvement work. From 1897 to 1901, and again from 1903 to 1905 he was with the Cape Government Railways in South Africa, first as locating engineer at Cape Colony, and during the last year as district engineer of maintenance at Mafeking, Port Elizabeth During 1901 and 1902 he was engineer in charge of construction on the White River Railroad at Batesville, Ark., and division engineer on location and construction of the Fort Smith & Western in Oklahoma. He was made assistant engineer of the Keweenaw Central in 1905, and from August 1, 1906, to June, 1912, he was division engineer of the Michigan Central at Bay City, Mich.

E. R. Lewis.

Traffic Officers.

H. C. McVean has been appointed general freight and passenger agent of the Denver, Laramie & Northwestern, with office at Denver, Colo., succeeding S. K. Martin, resigned.

A. E. Ryan, traveling passenger agent of the Northern Pacific at Atlanta, Ga., has been appointed district passenger agent, with office at Detroit, Mich., succeeding W. H. Whitaker, resigned, and W. W. Neal succeeds Mr. Ryan.

C. A. Redmond, traveling passenger agent of the San Pedro, Los Angeles & Salt Lake at Los Angeles, Cal., has been appointed district passenger agent, with office at Los Angeles, succeeding J. Cruickshank, and R. D. Smith succeeds Mr. Redmond.

Harry L. Norris, a clerk in the general baggage department of the Baltimore & Ohio, has been appointed traveling baggage agent, with headquarters at Baltimore, Md. The position of traveling baggage agent has been vacant since the promotion of J. P. Dugan to general baggage agent about six years ago.

C. J. Proudfoot, ticket agent of the Baltimore & Ohio at Parkersburg, W. Va., has been appointed traveling passenger agent, with office at Wheeling, succeeding T. C. Burke, deceased, and Edward Emery, city passenger agent at Pittsburgh, Pa., has been appointed traveling passenger agent at Omaha, Neb., a new agency.

F. C. Lathrop, district passenger agent of the Southern Pacific at Los Angeles, Cal., has been appointed an assistant general passenger agent of the Central district of that company, with office at San Francisco, and J. M. Fulton, district freight and passenger agent at Reno, Nev., has been appointed assistant general freight and passenger agent of the Central district, with office at Reno. G. J. Blech has been appointed district freight agent of the Southern district, with office at Los Angeles, and F. S. McGinnis has been appointed district passenger agent of the Southern district, at Los Angeles. C. J. Balfour has been appointed commercial agent, with office at Pasadena, Cal., succeeding Mr. McGinnis, and J. T. Saunders has been appointed industrial agent, with office at Los Angeles, succeeding Mr. Blech.

William Felix Taylor, who has been appointed assistant general freight agent of the Central district of the Southern Pacific, with office at San Francisco, Cal., as has been announced in these columns, was born July 4, 1881, at Huntsville, Ala. He received a public school education, and on December 15, 1898, began railway work in the office of the general agent of the Union Pacific at Los Angeles, Cal. Two years later he entered the local freight office of the Southern Pacific at Los Angeles, and was then consecutively in the office of the assistant general freight and passenger agent, chief clerk in that office, industrial agent, and at the time of his recent promotion to assistant general freight agent of the Central district he was district freight agent at Los Angeles.

W. D. Skinner, general freight agent of the Oregon-Washington Railroad & Navigation Company at Portland, Ore., has been appointed assistant traffic manager, with office at Portland, a new position. H. E. Lounsbury, general freight agent of the Southern Pacific at Portland, succeeds Mr. Skinner. Mr. Lounsbury was born on February 2, 1873, at Deer Lodge, Mont. He attended the public schools, and began railway work in 1887 with the Oregon Railroad & Navigation Company, as an office boy for the general passenger agent. During the time he was with that road he studied shorthand at night school, and in 1891 was made stenographer and clerk in the office of the manager of the Southern Pacific lines in Oregon. He was then consecutively passenger clerk, traveling freight agent, and district freight agent of the Southern Pacific; general agent in the freight department of the O. R. & N. and the Southern Pacific and district freight agent of the latter company, with office at Portland. He was appointed assistant general freight agent of both companies in November, 1910, and in November, 1911, he was appointed general freight agent of the Southern Pacific Company's lines in Oregon, with office at Portland.

H. E. Lounsbury.

W. L. Radford, eastern freight agent of the Atlantic Coast Line, at New York, has been appointed general eastern freight agent, with headquarters at New York, and his former position has been abolished. James F. Meade, division freight agent at Jacksonville, Fla.; W. G. Pulliam, division freight agent at Wilmington, N. C.; C. S. Campbell, division freight agent at

Richmond, Va., and W. E. Renneker, division freight agent at Charleston, S. C., have been appointed assistant general freight agents, with headquarters at the same places, and their former positions have been abolished. G. A. Cardwell, commercial agent at Montgomery, Ala., has been appointed division freight agent, with headquarters at Montgomery, and his former position has been abolished, and Ewen Davidson, commercial agent at Atlanta, Ga., has been appointed general agent, with headquarters at Atlanta, and his former position has been abolished.

Engineering and Rolling Stock Officers.

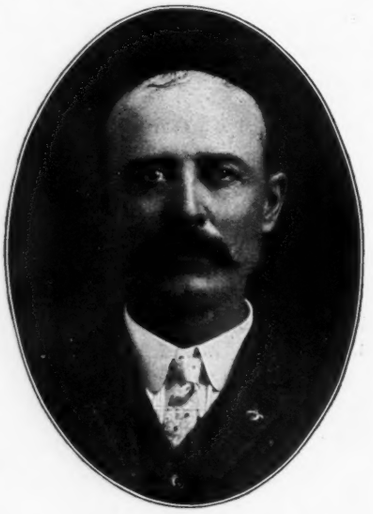
A. Swartz, division engineer of the Erie, with office at Huntington, Ind., has resigned.

T. F. Sullivan, division master mechanic of the San Antonio & Aransas Pass, with office at Yoakum, Tex., has resigned.

J. R. Decker, whose appointment as division engineer of the Michigan Central, with office at Bay City, Mich., has been announced in these columns, was born October 27, 1879, at Bellefonte, Pa. He graduated from Bellefonte Academy in 1899 and from the Penn State College in 1903, and began railway work in June, 1903, in the signal department of the Michigan Central. He was a draftsman until December, 1903, and was then for almost two years foreman of construction. In August, 1905, he was appointed supervisor of electric signals, and in May, 1907, was made supervisor of construction. He was promoted to assistant signal engineer in January, 1909, which position he held until July 1, 1912, the date of his appointment as division engineer as above noted.

J. R, Decker.

J. P. McMurray, who has been appointed master mechanic of the Rio Grande division of the Atchison, Topeka & Santa Fe, with office at Albuquerque, N. Mex., as has been announced in these columns, was born August 21, 1858. He began railway work as a wiper for the Atchison, Topeka & Santa Fe at Pueblo, Colo., in October, 1877, and has been with that road ever since. He was made locomotive fireman at Pueblo in 1878, and three years later was made locomotive engineer on the Rio Grande division at San Marcial. In January, 1903, he was promoted to road foreman of engines on the Rio Grande division and the Third district of the New Mexico division. He subsequently held the same position on the Western division, the River division and the Colorado division, and was promoted to master mechanic on May 15, 1912.



J. P. McMurray.

Julius C. Mill, signal inspector of the Chicago, Milwaukee & St. Paul, has been appointed assistant signal engineer, with office at the Milwaukee shops, Milwaukee, Wis., succeeding H. K. Lowry, resigned.

Frank Zeleny, assistant to the superintendent of shops of the Chicago, Burlington & Quincy at Aurora, Ill., has been appointed engineer of tests, with office at Aurora, succeeding William A. Derby, deceased. G. A. Haggander has been appointed assistant bridge engineer, with office at Chicago, succeeding L. J. Hotchkiss, resigned to go into the contracting business.

OBITUARY.

A. B. Smith, first assistant general freight agent of the Chicago, Burlington & Quincy, with office at Omaha, Neb., died of heart disease while sitting at his desk, on July 23.

William A. Derby, acting engineer of tests of the Chicago, Burlington & Quincy, with office at Aurora, Ill., died at the city hospital at Aurora on June 30. Mr. Derby was born October 22, 1872, at Burlington, Iowa. He attended the grammar school, high school and Elliott's Business College at Burlington, attended Iowa College at Grinnell, Iowa, for three years, and spent four years at the Armour Institute of Technology at Chicago. He entered the service of the Burlington in July, 1898, in the laboratory at Aurora. In 1903 he was made assistant engineer of tests, and on February 4, 1910, was promoted to acting engineer of tests.

The public works committee of New South Wales has recommended the construction of the proposed railway from Condobolin to Broken Hill, concerning which there has been a great deal of agitation for several years.

At a special cabinet council held recently in Stockholm, Sweden, the government appointed a committee to inquire into the security of the traffic on Swedish railways and to make proposals to insure the greatest measure of safety in traveling.

A Turkish commission has investigated the proposal to build the Ueskueb-Kalkandelen-Gostivar line, Macedonia, the concession for which is sought by the Oriental Company. This line will be a great aid in the transportation of troops to Albania. It will be built as soon as possible, and will open out the district of Drin somewhere about the meeting of the White and the Black Drin rivers, and be carried out further via Scutari to the Adriatic coast.

A Turkish commission has been visiting the district of Kossowa, and has been looking over the Koumanowo—the grain depot of the Koumanowo plain—in order to determine the advisability of building the Koumanowo-Palanka-Kuestendil line, projected some years ago. This line would make the shortest connection between Macedonia and Sofia in Bulgaria, thus avoiding the present necessary and inconvenient detour via Nisch, and would open up the fertile Egri Palanka section.

In 1911 the Bagdad Railway, Asia Minor, transferred the concession for the final section of the line, from Bagdad to Basra, to a Turkish company, which immediately opened negotiations with the British government. The latter proposed a scheme by which the control of this last section should be given to five powers—Great Britain, France, Germany, Russia and Turkey—each to have an equal share in the construction and to find one-fifth of the capital. Russia's interest in this section is important, as she has undertaken to construct a line from Teheran to Khanikin, on the Turco-Persian frontier, which will connect with a branch of the Bagdad Railway from Sadijeh, near Bagdad, to Khanikin. Before Great Britain finally enters upon an agreement a further consideration of certain subjects will be necessary. The first question will be that of the choice of Basra as a terminus. Basra is the center of trade in this region, being situated at the junction of the Euphrates and Tigris rivers, and it is the ancient port of Mesopotamia, receiving the whole of the interior traffic and a great proportion of the shipping from the Persian Gulf. The next point is that the Bagdad Railway, in relinquishing its concession for the Bagdad-Basra section, received a promise of compensation from the Turkish company. The remaining question is that of Koweit, which was at one time proposed as the terminus.

Equipment and Supplies.

LOCOMOTIVE BUILDING.

THE PARIS & MT. PLEASANT has ordered 1 ten wheel type locomotive from the Baldwin Locomotive Works.

THE TEXAS, OKLAHOMA & EASTERN has ordered 1 mikado locomotive from the Baldwin Locomotive Works.

THE PULLMAN COMPANY, Chicago, has ordered 1 mogul locomotive from the Baldwin Locomotive Works.

THE MASTELLER COAL COMPANY has ordered 1 Forney type locomotive from the Baldwin Locomotive Works.

THE BUTTE, ANACONDA & PACIFIC has ordered 17 electric locomotives from the American Locomotive Company.

THE MICHIGAN ALKALI COMPANY has ordered 1 four wheel switching locomotive from the Baldwin Locomotive Works.

THE GEORGIA RAILROAD has ordered 6 ten wheel locomotives and 2 six wheel switching locomotives from the Baldwin Locomotive Works.

THE BOSTON & ALBANY has ordered 5 Pacific type locomotives, 8 six wheel switching locomotives, 4 consolidation locomotives and 4 Mallet locomotives from the American Locomotive Company.

THE ILLINOIS CENTRAL has ordered 10 six wheel switching locomotives from the American Locomotive Company. These locomotives will be equipped with superheaters, will have 21 in. x 26 in. cylinders, 51 in. driving wheels, and in working order will weigh 150,000 lbs.

THE MINNEAPOLIS & ST. LOUIS has ordered 10 superheater consolidation locomotives from the American Locomotive Company. The dimensions of the cylinders will be 22½ in. x 30 in., the diameter of the driving wheels will be 60 in., and the total weight in working order will be 190,000 lbs.

THE SOUTHERN RAILWAY has ordered 10 Pacific type locomotives, 6 consolidation locomotives and 4 six wheel switching locomotives from the American Locomotive Company. The Pacific type locomotives will be equipped with superheaters and will have 24 in. x 28 in. cylinders, 72½ in. driving wheels, and in working order will weigh 233,000 lbs. The consolidation locomotives will be equipped with superheaters; will have 24 in. x 30 in. cylinders, 57 in. driving wheels, and in working order will weigh 211,000 lbs. The switching locomotives will have 20 in. x 26 in. cylinders, 51 in. driving wheels, and in working order will weigh 148,000 lbs.

CAR BUILDING.

THE VIRGINIAN is in the market for about 9 caboose cars.

THE NEW YORK, NEW HAVEN & HARTFORD is in the market for 20 milk cars.

THE CUBAN CENTRAL is in the market for 50 thirty-ton steel underframe box cars.

THE GUANICA CENTRALE, Cuba, is in the market for 50 steel underframe cane cars.

THE ESCANABA & LAKE SUPERIOR is in the market for one hundred 41 ft. flat cars of 80,000 lbs. capacity.

THE LEHIGH VALLEY is said to be making inquiries for 1,000 freight cars. This item has not been confirmed.

THE PITTSBURGH & LAKE ERIE is said to be in the market for 1,000 fifty-five ton hopper cars. This item has not been confirmed.

THE CANADIAN PACIFIC has ordered 1,000 box cars from the American Car & Foundry Company and 1,000 box cars from the Haskell & Barker Car Company.

THE BUFFALO, ROCHESTER & PITTSBURGH is in the market for 500 fifty-ton steel underframe gondola cars, 500 forty-ton steel underframe box cars, 100 forty-ton steel underframe automobile cars and 100 forty-ton steel underframe refrigerator cars.

THE BOSTON & ALBANY has ordered 3,000 box cars from the American Car & Foundry Company, 1,000 box cars from the Keith Car & Manufacturing Company, 800 general service cars from the Pressed Steel Car Company, 400 flat cars from the Standard Steel Car Company, 100 Roger ballast cars from the American Car & Foundry Company, 20 coaches from the America Car & Foundry Company, and 8 postal cars from the Laconia Car Company.

IRON AND STEEL.

THE SOUTHERN NEW ENGLAND is in the market for 10,000 tons of rails.

THE CHICAGO, MILWAUKEE & PUGET SOUND is taking prices on 5,000 tons of bridge material.

GENERAL CONDITIONS IN STEEL.—Orders of the steel companies for new business exceeded production during several days of the past week. Steel manufacturers feel that the unfilled tonnage of the steel corporation will show but little change this month. If this should be the case, a new high record will be made for July bookings. Prices have been advanced on certain products during the last few days, and premiums of $3 a ton are now being paid for prompt deliveries of structural material. All the steel companies are operating at full capacity.

SIGNALING.

New Installations of Block Signals, Interlocking, Telephones for Train Despatching, Etc.

The Wabash is to introduce telephone train despatching on about 800 miles of its lines, using United States and Western Electric apparatus. The company has ordered from the Western Electric Company apparatus for the line between Decatur and St. Louis, 115 miles, with 30 stations, and between Decatur and Danville, with 17 stations. From the United States Electric Company it has ordered Gill selectors and other apparatus for the lines from Peru to Montpelier; Montpelier to Detroit; Peru to Tilton; Decatur to Chicago, and Moberly to St. Louis. Telephone sets, in iron cases, are to be provided for use on wrecking trains and in other emergencies, and telephones will be provided at 50 outlying side tracks.

The Piedmont Traction Company, operating electric lines in North Carolina, has equipped 23 miles of its road with train order signals controlled separately by the despatcher by means of Western Electric selectors on the telephone lines. On this line the trolley current is one of 1,500 volts and trains run at high speed. There are seven stations at which the train despatcher can cause the semaphore to move to the stop position at any time. It is returned to the normal or clear position by the conductor of the train which has been stopped by the signal. The telephone at such a station is fixed in a box on the signal post. The motor which operates the signal is energized by a current from the despatcher's office over the telephone line and no local battery is needed. The Western Electric Company has the contract for a similar equipment for the line of the Greenville, Spartanburg & Anderson, which is owned by the same interests.

Satisfactory progress is being made on the work of double-tracking the line between Westgarth, Victoria, and Alphington. The earthworks have been completed and the materials for the new track distributed. Work of laying the rails will be begun immediately.

Over 100 men are now engaged on the work of regrading the line between South Geelong, Victoria, and Geelong, and in substituting an overhead bridge for the grade crossing at Mooraboll street, Geelong. The earthworks, which involve about 20,000 cu. yds., have nearly been completed.

The railway from Mezdra, Bulgaria, on the Sofia-Rustchuk line via Vratza to Vidin, on the Danube river, is nearing completion, and as a Roumanian line from Kalafat, immediately opposite to Vidin, already exists, a new connection will be created between the Danube river and northern Europe, which is expected to be an important factor in the development of Bulgaria.

Supply Trade News.

The Chicago Steel Car Company has moved its general offices from Chicago to its plant at Harvey, Ill.

The Isthmian Canal Commission will receive bids until July 29 on miscellaneous supplies, including locomotive tires (circular No. 720); and until September 3 on Portland cement (circular No. 721).

Alexander Leslie Black, engineer of the New Orleans Railway & Light Company, New Orleans, La., has gone to Ford, Bacon & Davis, engineers, New York, to take charge of their southern properties.

The Newcastle Steel & Iron Company, Newcastle, Pa., has been incorporated in Pennsylvania, to make steel cars. A plant is to be built at Newcastle. The incorporators are Edwin N. Ohl, Andrew B. Berger, W. H. Schroder and E. H. Brainard, all of Pittsburgh, Pa. Edwin Ohl may take an active part in the management of the company.

The name of the Imperial Car Company, Hamilton, Ont., mentioned in the *Railway Age Gazette* of July 5, has been changed to the National Steel Car Company, Ltd., owing to objections raised by the state department in Ottawa, Ont. The general offices of the company will be at Montreal, Que., and the plant will be at Hamilton. The authorized capitalization of the company is $6,000,000, comprising $3,000,000 7 per cent. cumulative preferred stock and $3,000,000 common stock. Of this, $1,500,000 preferred stock and $2,000,000 common stock has been issued. The officials of the company are as follows: President, Sir John Gibson. lieutenant-governor of Ontario; vice-president and general manager, Basil Magor, of New York; assistant secretary, treasurer and purchasing agent, Adolph Butze. The directors are Sir John Gibson, William Southam, and J. J. Scott, all of Hamilton; Sir H. Pellatt, of Toronto, Ont.; W. G. Ross, Mortimer Davis and C. H. Cahan, all of Montreal; William Barclay Parsons, W. Kirkpatrick Brice, Murray H. Coggeshall and Basil Magor, all of New York. The company has placed contracts for its steel work, and all contracts are being let for completion not later than November of this year. The main plant will be 900 ft. x 200 ft.

A Correction.

A most unfortunate combination of errors appeared in a Supply Trade News item published in last week's issue, page 142. An item to the effect that the Davenport Locomotive Works, Davenport, Iowa, had opened an office in the First National Bank building, Cincinnati, and an item stating that Isaac Block, president of the Hyman-Michaels Company, Chicago, had died on July 10, were combined in a telegram sent to our New York office on press day, and through a misunderstanding of the telegram it was made to appear that Mr. Block had been made president of the Davenport Locomotive Works.

TRADE PUBLICATIONS.

FREIGHT CAR APPLIANCES.—The Wine Railway Appliance Company, Toledo, Ohio, has published a small booklet describing and illustrating its steel car ladder and its car ventilating shutter.

THROTTLE VALVES.—The Watson-Stillman Company, New York, has published catalog No. 86, illustrating and describing the Chambers throttle valve. This catalog enumerates 17 advantages of these valves.

SECTIONAL EXPANDERS.—The J. Faessler Manufacturing Company, Moberly, Mo., has published bulletin No. 28 on the Faessler safety sectional expander, with quick-acting knockout, illustrating and describing this tool in detail.

BOILER TUBES.—The Parkesburg Iron Company, Parkesburg, Pa., has published a small booklet on its charcoal iron boiler tubes. This booklet is illustrated and gives interesting and valuable information on these tubes. Prices are included.

ROOFS.—The Barrett Manufacturing Company, New York, has published a folder entitled A Mile of Barrett Specification Roofs, illustrating the building of the Bush Terminal Company at Brooklyn, N. Y., which are covered with Barrett specification roofs.

Railway Construction.

New Incorporations, Surveys, Etc.

ATCHISON, TOPEKA & SANTA FE.—Work is now under way by Walter H. Denison, Wagoner, Okla., on the Texico-Coleman cutoff, building a 90-mile section between Lubbock, Tex., and Texico, N. Mex. C. A. Morse, chief engineer of the system, Topeka, Kan.

BOSTON & EASTERN (Electric).—This company is planning to start work soon, it is said, on an electric line from Boston, Mass., northeast to Danvers, about 20 miles. J. H. Bickford, 110 State street, Boston, is the engineer.

BUCKHANNON & NORTHERN.—An officer writes that work on the line under construction for some time from Rivesville, W. Va., north to the West Virginia-Pennsylvania state line is about finished, and the line will soon be put in operation. (October 6, p. 690.)

CANADIAN NORTHERN.—A contract has been given to the Northern Construction Company, it is said, for grading the railway yards at Port Mann, B. C. The cost of the work will be about $150,000. W. G. Swan is in charge of the work.

The board of Railway Commissioners of Canada has approved this company's plans for the proposed tunnel under Mount Royal, from the company's model city at the back of the mountain to the terminal at Lagauchetierre street, Montreal. The question of overhead rights of way from the city terminal to the harbor has been carried over for further discussion.

CANADIAN NORTHERN PACIFIC.—Subcontracts for work on the 185 mile section from Kamloops, B. C., northeasterly towards Yellowhead Pass, have been given to the following contractors: McDonald Brothers, 20 miles; Boyd & Craig, 10 miles; Murdock & Company, 30 miles; Twohy Brothers, 100 miles. The work from the end of the last contract to Albreda Summit has not yet been sublet. T. H. White, chief engineer, Vancouver, B. C.

CAROLINA, CLINCHFIELD & OHIO.—The Dump's Creek line has been extended from Hurricane, Va., to Wilder, about four miles. Ward Crosby, chief engineer, Johnson City, Tenn.

CENTRAL OF NEW JERSEY.—An officer writes regarding the reports that improvements are to be carried out near Coalport, Pa., and at Glen Onoko, that the company will spend $100,000 building a new short line to replace the present line and to avoid the use of the present tunnel. Some yard changes will be necessary in connection with this work. J. O. Osgood, chief engineer, New York.

CHICAGO, MILWAUKEE & ST. PAUL.—A contract has been given to Morris Sheppard & Doughterty, St. Paul, Minn., for 12 miles of double-tracking work west of Montevideo, Minn. C. F. Loweth, chief engineer, Chicago.

DENVER & RIO GRANDE.—The budget for 1912 will call for an expenditure of about $6,000,000, of which $3,500,000 is to be spent for double-tracking work and improvements to the terminal facilities. A contract for nine miles of second-track between Castle Gate, Utah, and Kyune has been given to Kilpatrick Brothers, Beatrice, Neb., and when these improvements are finished the company will have continuous double-track from Helper northwest to Tucker, 33 miles. The permanent location is being made for a new 2 per cent. line to replace the present 4 per cent. line on the west side of Soldier Summit, Utah, and it is expected that bids will be asked for the work as soon as the surveys are completed. J. G. Gwyn, chief engineer, Denver, Colo.

A contract for an additional section of 17 miles of second-track from Tucker, Utah, to Thistle, has been given to the Utah Construction Company, Ogden, Utah. Other improvements to be made include ballasting the desert section of the main line between Westwater, Utah, and Cisco. Some grade improvement work is also to be carried out between Riverside and Malta in Colorado, and a number of new passing tracks will be laid in Colorado and Utah.

GRAND TRUNK PACIFIC.—An officer of the National Transcontinental which is building the eastern section of this road writes regarding the reports that grades are to be increased on the sec-

tions of the line yet to be built, that no changes in grade that will injuriously affect traffic have been made or are in contemplation. It is hoped that through freight service between Winnipeg, Man., and Cochran, Ont., may be established this coming autumn, and that the entire line may be finished during 1913. There remains about 150 miles of track yet to be laid between Winnipeg and Cochran, about 120 miles between Cochran and Quebec, Que., and about 35 miles between Quebec and Moncton, N. B.

GREAT NORTHERN.—An officer writes regarding the reports that a line is to be built over the Hope mountains from Coalmont, B. C., to Vancouver, that several surveys have been made over the Hope mountains, but nothing definite has yet been decided in connection with the construction of such a line. A. H. Hogeland, chief engineer, St. Paul, Minn.

JACKSONVILLE & PEORIA (Electric).—The receiver of this company has been authorized by the court to issue $150,000 of certificates to complete the line from Alton, Ill., north to Jerseyville, about 20 miles.

MEXICO NORTH WESTERN.—This company is said to be planning to build an extension from El Paso, Tex., to a connection with the St. Louis & San Francisco, in the Texas Panhandle. B. H. Bryant, chief engineer, Ciudad Juarez, Chih., Mexico.

MISSOURI & KANSAS INTERURBAN.—Financial arrangements are said to have been made to build an extension from Olathe, Kan., northwest to Topeka, 70 miles. The company will ask permission from the State Public Utilities Commission to issue $2,000,000 in bonds to secure funds for building the extension. W. B. Strong, president, Overland Park, Kan.

NEW YORK CENTRAL & HUDSON RIVER.—Double-tracking work is now under way on a section of the Putnam division, on between eight and nine miles from Nepperhan, N. Y., to Elmsford. The work is being carried out by the company's men. G. W. Kittredge, chief engineer, New York.

NEW YORK, NEW HAVEN & HARTFORD.—See an item in General News regarding the electrification and four-tracking of this road from Boston, Mass., to Providence, R. I., 45 miles.

NEW YORK SUBWAYS.—Bids are wanted July 31, by the New York Public Service Commission, First district, New York, for the construction of section 1-A of the Lexington avenue line. The work will include a two-track subway in Church street, Vesey street and Broadway from Church and Dey streets to Broadway and Park Place.

It is understood that the city authorities will get sufficient property owners' consents on Montague street, in the borough of Brooklyn, to ensure the building of the Montague street subway.

Contracts have been given to Arthur McMullen, New Canaan, Conn., and to Olaf Hoff, Montclair, N. J., for building section 14 of the Lexington avenue subway. This section includes a tunnel under the Harlem river. A contract has also been given to the O'Rourke Engineering Construction Company, New York, to build section 2-A, covering the station on the Broadway-Lexington avenue line at Canal street and Broadway.

NORTHERN TERRITORY RAILWAY.—Financial arrangements are said to have been made by this company, which has a capital of $40,000,000. The company has a charter from the Dominion government to build from Fort Churchill, on Hudson bay, west to a point on the Pacific coast at Port Essington, B. C., 1,450 miles.

PHILADELPHIA & WESTERN (Electric).—According to press reports, this company is now at work on the extension from Villanova, Pa., north to Norristown. The work is very heavy and consists of cut and fill work.

SOUTH CAROLINA ROADS (Electric).—Plans are being made to build an electric line from Charleston, S. C., northwest to Summerville, 22 miles. J. L. David, J. A. Hertz, and S. Louis Simons, Summerville, are interested.

SOUTH CAROLINA WESTERN.—This company has opened the extension of its Sumpter division to Bishopville, S. C., 16 miles from Hartsville. J. E. Hancock, vice-president and manager, Hamlet, N. C.

SOUTHERN ILLINOIS RAILWAY & POWER.—According to press reports this company has asked permission to build from Eldorado, Ill., southwest via Harrisburg to Carrier Mills, about 15 miles. Most of the franchises have been secured, and it is expected to have the line completed and in operation by January, 1913.

TEXAS, GULF & NORTHERN.—Negotiations have been completed for building this line from Tecumcari, N. Mex., crossing the Texas & Pacific at Midland, Tex., thence southeasterly to San Antonio, about 600 miles. Work has already been begun at Midland on the permanent location. A contract has been entered into between the railway company and residents of Midland, which requires that construction work shall be begun within 60 days. Midland is to be a division point, and it is the present intention to locate the headquarters and principal shops at that place. Financial arrangements have been made and the work will be pushed to completion. The company expects to secure a large tonnage from the New Mexico coal fields. J. A. Underwood, president; W. N. Sadler, vice-president, Amarillo, Tex., and M. C. Lemaster, secretary and general manager.

U. S. GOVERNMENT LINE.—A bill has been introduced in the lower house of Congress, authorizing the secretary of the navy to build a single-track electric railway from Washington, D. C., south to the naval proving grounds at Indian Head, Charles county, Md., about 25 miles.

VERMILION TRACTION COMPANY.—Financial arrangements have been made, it is said to build from Clinton, Ind., to Ridge Farm, about 30 miles. It is understood that contracts for building the line will be let in September. T. A. Graves, chief engineer, Indianapolis, Ind.

WASHINGTON, WESTMINSTER & GETTYSBURG.—The Public Service Commission of Maryland has authorized this company to make a mortgage, the proceeds of which are to be used for building 18 miles of line from Brentwood, Md., north to Sandy Spring. The contract for the work has been let to the Columbian Construction Company, and five miles has been completed. It is estimated that the cost per mile for future construction will be about $35,000. It has not yet been definitely decided whether the company will use electricity or steam as the motive power.

WHITE PASS & YUKON.—President O. L. Dickeson is quoted as saying that a 120-mile extension will be built from White Horse, Yukon, to Tantalus, or Yukon Crossing, tapping the great Tantalus, or British Yukon coal fields. Surveys are now being made.

RAILWAY STRUCTURES.

ALAMOSA, COLO.—The Denver & Rio Grande improvements will include putting up new and modern coal chutes at Alamosa and at Grand Junction, Colo.; also at Thistle Junction, Utah, a number of new track scales are to be installed and turntables to have a diameter of 100 ft. will be put in at Minturn, Colo., and at Thistle Junction, Utah. Tools for the various shops are to be bought. Many of the bridges will be replaced with new structures, and some of the high trestles on the branch lines will be filled in.

BELLEFONTAINE, OHIO.—The Cleveland, Cincinnati, Chicago & St. Louis has awarded a contract to Sugrue & Easley of Bellefontaine for an addition of 15 stalls to the company's 21-stall roundhouse.

CENTRALIA, ILL.—Contracts have been let by the Illinois Central for all of the buildings in connection with its new engine terminal, including a 48-stall roundhouse and erecting shop, power house, machine shop, car repair shop, mechanical coaling station, three cinder pits, an inspection pit and two water tanks. The contract for grading was given to J. G. Lynch of Monmouth, Ill.; for masonry to the Gould Construction Company of Davenport, Ia., and for the building construction to T. S. Leake & Co., Chicago.

DETROIT, MICH.—The Wabash Railroad has given a contract to C. W. Gindele & Company, Chicago, for a complete engine terminal at Detroit, to cost $100,000.

GRAND JUNCTION, COLO.—See Alamosa, Colo.

GREENVILLE, TEX.—The St. Louis Southwestern and the Texas

Midland are planning the erection of a new union passenger station.

Hartford, Conn.—An officer of the Central New England writes regarding the reports that a new brick and concrete freight house is to be built, at a cost of $15,000, to replace the structure which was destroyed by fire, that no definite decision has yet been reached in regard to rebuilding the structure.

Houston, Tex.—The Houston Belt & Terminal Company is building a two-story addition to its passenger station and is planning to expend $25,000 in additions to its freight stations.

Ludington, Mich.—The Pere Marquette has awarded the contract for a 16-stall roundhouse of the square or through type to the Hauser-Owen-Ames Company of Grand Rapids, Mich. The cost will be approximately $50,000.

Midland, Tex.—See Texas, Gulf & Northern under Railway Construction.

Minturn, Colo.—See Alamosa, Colo.

Ottawa, Ont.—The Railway Commission of Canada recently ordered that work should be started at once on the grade separation improvements previously ordered by the commission, and that the union station in Ottawa be built. All the improvements are to be finished by September, 1914.

Port Huron, Mich.—The Pere Marquette has awarded the contract for the construction of a 12-stall roundhouse, to cost approximately $40,000, to Rabbit & Sons, Toledo, Ohio.

Richmond, Que.—Plans have been filed by the Grand Trunk for a new station, to be built at Richmond, at a cost of about $20,000, to replace the structure destroyed by fire.

Saginaw, Mich.—The Pere Marquette has awarded the contract to Fairbanks, Morse & Company, Chicago, for a locomotive coaling station to cost approximately $50,000.

St. Joseph, Mich.—The receivers of the Pere Marquette have authorized the construction of a passenger station at this point, but the plans have not yet been completed.

Seattle, Wash.—The Great Northern has awarded the contract to the Butler Construction Company of Seattle for the construction of 15 concrete piers for the proposed bridge over the Lake Washington Canal.

Temple, Tex.—The Missouri, Kansas & Texas proposes to begin work in the fall on a new passenger station.

Thistle Junction, Utah.—See Alamosa, Colo.

The line between Ayacucho, Peru, and Cuzco will probably not be built for some time, as it would have to pass through a very difficult portion of the country and as its construction would not be justified unless it would be the completing link of the intercontinental line.

On the Victorian railways last year the record number of 93,795,805 passengers were carried. This represents an increase of over 8,500,000 passengers as compared with the previous year, which, in turn, had shown an improvement of over 4,000,000 passengers over the previous year.

A plan is under way for the construction of an aerial railway to connect Manizles, Colombia, with Mariquita, about 40 miles. For every mile of cable it will be necessary to build 15 or 16 towers. The motive power is to be derived from a point on the Guali river, where it is said 750 h. p. can be developed.

The concession for the Chimbote-Recuay railway, Peru, has been taken away from the original holders, who absolutely failed to carry out their part, and the Peruvian Corporation is now completing the line to Kilometer 105 and is checking up the survey to Recuay, with the intention of extending the line to that point immediately.

The agreement of the Bulgarian and Turkish commissioners for the connection of the existing Bulgarian railway from Sofia to Constantza, on the Turkish border, with the line from Nish, Servia, to Saloniki, at Kumanova, must first be approved at Constantinople. If this connection is made, direct communication between Bulgaria and the Aegean Sea will be made for the first time.

Railway Financial News.

Boston & Albany.—The *Wall Street Journal* says that arrangements have been made for an equipment trust for the B. & A., financed jointly by the New York, New Haven & Hartford and the New York Central and Hudson River, or by the New York, New Haven & Hartford and Boston & Albany. The trust is to be for about $6,000,000. Replacements and additions to equipment in recent years have been made by lease to the Boston & Albany of New York Central & Hudson River equipment, so that in case the lease of the Boston & Albany to the New York Central should be broken off (of which there is not the slightest prospect at present), the Boston & Albany would have of its own comparatively few cars.

Boston & Providence.—It is understood that this company will issue $4,000,000 4½ per cent. seventy-five year bonds, guaranteed by the New York, New Haven & Hartford, to help pay for the electrification of the New York, New Haven & Hartford between Boston and Providence, mentioned in General News.

Bridgeton & Saco River.—It is understood that the entire stock of this narrow gage road, running from Harrison, Me., to Bridgeton Junction, 21 miles, has been bought by the Maine Central.

Chesapeake & Ohio of Indiana.—The Ohio Public Service Commission has now authorized both the issue of $132,700 additional stock and $929,000 first mortgage 5 per cent. 20-year bonds. The bonds to be sold at not less than 80. It was at first reported that the commission had denied the application to issue the bonds, although permitting the issue of stock.

Denver, Northwestern & Pacific.—Holders of the $3,500,000 Denver Railway Securities Co. notes have agreed to extend these notes until a plan for reorganizing the Denver, Northwestern & Pacific can be formulated, on condition, it is said, that the Denver interest raise $1,000,000 to be put into improvements and development of the road. The protective committee for the note holders, of which Benjamin Strong, Jr., vice-president of the Bankers' Trust Co., New York, is chairman, is holding meetings in Denver.

Newman Erb has made the following statement: "I have made an offer on behalf of myself and associates to recognize and re-finance the Denver, Northwestern & Pacific. Details of this offer will have to come from the protective committee, headed by Benjamin Strong, Jr., vice-president of the Bankers Trust Company. This committee is holding a meeting in Denver today, and will return to New York about next Monday. I have not heard directly from the committee whether my proposition has been accepted or not. I hear indirectly that it is considered satisfactory by the committee. There may be some details, however, which the committee will not accept."

Kingston & Pembroke.—Stockholders will be asked at the annual meeting, August 14, to vote on the question of leasing the road to the Canadian Pacific, and also to consider the question of retiring the outstanding bonds by the issue of some other security.

Lancaster, Oxford & Southern.—It is said that W. U. Hensel, of Lancaster, representing Philadelphia interest, has bought the L. O. & S. for $50,000. The sale of the property for $50,000 to representatives of the bond holders was recently announced in these columns.

Missouri Pacific.—James Speyer, George J. Gould, Edwin Gould, E. T. Jeffery and E. D. Adams have been appointed a committee to consider the position of the Missouri Pacific in the proposed reorganization plan of the Wabash, which, if carried out, will call for an assessment on the Wabash stock held by the Missouri Pacific of $3,500,000. See also St. Louis, Iron Mountain & Southern.

New York New Haven & Hartford.—See Boston & Providence.

St. Louis, Iron Mountain & Southern.—This company has declared an annual dividend of 4 per cent. on its $44,396,573 stock. Of this stock, all but a few thousand dollars is owned by the Missouri Pacific. No dividend was declared in 1911 and 6 per cent. was declared in the previous year.